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# USSR Report

POLITICAL AND SOCIOLOGICAL AFFAIRS

AFTERMATH OF CHERNOBYL NUCLEAR  
POWER PLANT ACCIDENT - PART III

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27 MARCH 1987

USSR REPORT  
POLITICAL AND SOCIOLOGICAL AFFAIRS  
AFTERMATH OF CHERNOBYL NUCLEAR  
POWER PLANT ACCIDENT - PART III

[For Part I of this material see JPRS-UPS-86-038 of 6 August 1986.  
For Part II see JPRS-UPS-87-004 of 22 January 1987]

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## POLITICAL

### FOREIGN NEWSPAPER REPORTS CASTIGATED

Minsk SOVETSKAYA BELORUSSIYA in Russian 22 Nov 86 p 3

[Article by V. Bibikov: "Playing Into Whose Hands?"]

[Text] Vicious tongues are more frightening than a pistol, wrote a poet in the last century. In our day, when almost every slanderous word about the Soviet Union is published in the West in millions of bourgeois newspapers and journals and broadcasted by tens of radio stations, lies are a rather powerful weapon. The "objective" description of the tragic events in Chernobyl by American organs of information in particular, whose management is responsible for affirmations about the alleged thousands of casualties, once again confirm this fact. In the meantime, before the verdict is in, millions of people have been fooled.

It would seem that this is a clear lesson of the "truthfulness" of the bourgeois "well wishers". And it is especially strange when at the prompting of some radio announcers, certain of our fellow citizens, assuming the appearance of being informed, spread false rumors about imagined failures in liquidation of the accident at the Chernobyl AES.

Our reader M. A. Kulsha from the urban settlement of Krupka, evidently unable to find any weighty arguments to refute the idle talkers, turned to the editors with a number of questions. The first of these was: "Is it true that there was another explosion in Chernobyl, accompanied by the emission of radioactive elements?"

The central newspapers have in fact already answered this question. For example, PRAVDA wrote on 15 November: "The sarcophagus is built...Now the destroyed fourth power unit of the Chernobyl Atomic Plant is entombed forever in the thickness of a reinforced concrete vault. The most crucial stage in liquidating the consequences of the accident has been completed". The next day, IZVESTIYA reported that: "For its (the sarcophagus) construction, it was necessary to install around 7,000 tons of metal structures and to lay 410,000 cubic meters of concrete. The reactor in which the accident occurred has been reliably isolated". Also, special sensors constantly inform us of the behavior of the entombed atomic installation. Consequently, there is no basis for speaking of any explosions or emissions.

M. A. Kulsha also wanted to know if there was any truth to the circulating rumors on increasing the zone of depopulation in the regions of Belorussia

adjoining the Chernobyl AES to 120 kilometers? We acquainted BSSR Council of Ministers Chairman V. G. Yevtukh with this question. In response we heard that there is no need to expand the depopulation zone to 120 kilometers.

M. A. Kulshi's last question was: "Why isn't Belorussia participating in the Moscow Trade Fair? Is it because our products contain an increased level of radiation?"

Belorussia really did not participate in the fall Moscow food fairs. But the question here certainly had nothing to do with radiation, but with the fact that it simply made no sense to transport potatoes, cabbage, carrots, and beets long distances for sale at the market when these same products are grown in abundance in Podmoskovye. At the same time, Belorussia has sent its full share of the traditional "export" culture--potatoes--to the union fund. These have been sent for winter storage to Leningrad, Uzbekistan, and other union republics.

As responsible workers of the BSSR Ministry of Health have reported to our editorial staff, food products undergo mandatory inspection over the entire territory of the republic, both before being shipped from the farms, and from processing enterprises, and also in the trade network. The produce sold at kolkhoz markets is no exception. At the present time, restrictions have been lifted on the use of any kinds of products. Only in certain rayons which had been subjected to the effects of radiation, the consumption of milk from cows maintained at personal subsidiary farms is not recommended. It is bought up by state and cooperative procurement organizations for subsequent processing to exclude the possibility of radiation contamination.

Such is the situation for the present day. But evidently, for some die-hard ill-wishers it would be better if our situation were worse. Let those who spread all kinds of gossip and lies stop and think. This includes those who spread rumors about the accident in Chernobyl. Whose hands are their playing into?

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## POLITICAL

### PARTY POLITICAL WORK WITH MILITARY UNITS

Moscow KOMMUNIST VOORUZHENNYKH SIL in Russian No 22, Nov 1986 pp 48-54

[Article by Lt Gen N. Goncharov: "The Strength of Party Influence. From the Experience Gained in Party Political Work in the Units Taking Part in the Cleanup Following the Accident at the Chernobyl AES"]

[Text] Chernobyl... Today every Soviet person knows of this small Ukrainian town. The entire country is taking part in the cleanup following the accident at the nuclear power station. In these exceptional circumstances, the CPSU Central Committee June (1986) Plenum emphasized, the sense of organization and patriotism of Soviet people have been seen with special force. At this difficult time, firemen, engineers, physicians, scientists and troops have displayed steadfastness, selflessness and courage.

Troops arrived in the disaster area in the first hours following the accident. The soldiers, sergeants, warrant officers and officers helped in the evacuation of inhabitants from the contaminated zones, carried out various kinds of engineering work, and decontaminated territory, buildings, installations and equipment on a broad front. Now they are working on the most crucial sectors, demonstrating a high degree of professionalism, loyalty to duty and strength of spirit.

It is the communists who are the first to move to carry out the most complex tasks. This was the way it was at the front. This is still the way it is at Chernobyl. By dint of example and by their personal courage the commanders, political workers and party activists have succeeded in mobilizing personnel to carry out crucial government tasks.

The extreme nature of the situation and the lack among command and political personnel of experience in acting under conditions of real radiation contamination required the rapid restructuring of forms and methods of party political work to make it suitable for the complex situation prevailing. We started to resolve this task with the apparatus of the political organs. First we succeeded in having every political worker go through a course organized in the region of the AES to gain a clear idea of his duties and his full responsibility for his assignment. Deputy chiefs of operational groups for political affairs and the chiefs of political organs worked out operational solutions for carrying out political work among the troops. The

work was organized on a differentiated basis, taking into account the specific nature of units and subunits [podrazdeleniye] and the missions entrusted to them. The constantly changing situation at objectives and the numerous tactical problems required abandonment of some of the usual work methods. In particular it was deemed expedient to plan party political work for periods of 10 days rather than 1 month. This made it possible to react immediately to change in the situation and send communists in good time to the most difficult sectors and constantly check the execution of adopted decisions.

The political organs have taken under strict control the course of the restructuring of the style and methods of party work as applied to the new conditions, along with questions of enhancing the responsibility of communists for their assignments. They are constantly studying and analyzing the degree to which communists in the sections and services and party organizations are influencing the quality of execution of decontamination and other work and the status of material-technical and medical support for units and subunits. And it must be said that most officers at headquarters and in the services have managed to restructure themselves rapidly on the psychological plane. They are constantly to be found at the most crucial sections, where with a fine sense of personal organization and firmness in leadership they are insuring the timely fulfillment of the tasks entrusted to their personnel. During the cleanup process following the accident there have been virtually no unjustified decisions, failures to meet work schedules, carelessness or negligence. At the same time concern has been constantly shown to safeguard people's health.

The helicopter crews have displayed great professional skill and high moral and political qualities at Chernobyl. During the early days, in a complex and poorly studied situation the subordinates of officers V. Kuznetsov, B. Nesterov and A. Serebryakov did everything possible to localize the scales of the contamination and bring the situation under control. They carried out a large number of flights into the most dangerous zone and dropped tons of material into the reactor crater.

Dozens of times the helicopter crews of the subunit where party group organizer officer L. Vaytlo was working lifted off and carried out the most complex operations right above the power station. It was often necessary to work at the limits of risk. But each time the helicopter crews displayed minute accuracy in the flying, along with uncommon self-possession and self-control. There were only a few communists in the subunit. And they became the cementing nucleus of the collective and were the first to carry out the most difficult missions.

The actions at Chernobyl have shown that boldness, determination and a conscious readiness to carry out any order are inherent in virtually every military flier. However, the conditions of real radioactive contamination have demanded a high psychological steadfastness from them, along with the ability to react instantaneously to the nonstandard situations that often arise, and to base their actions not on emotions but accurate calculation. The day-to-day organizational and political work of the commanders, political organs and party organizations has been focused on instilling these qualities. The communists have carefully studied and generalized leading experience,

introduced much that is new into the practical work of preflight preparation, and concerned themselves constantly with the moral and psychological status of aircrew personnel and ground-services specialists.

The selfless labor of the military fliers has been highly assessed by the government commission. The minutes of one of its meetings note the high organization of work done by the aviators to carry out missions connected with the cleanup of the accident at the Chernobyl AES.

The complexity of the tasks facing the troops and the constantly changing situation have made new and more stringent demands on the organization of party political work. And individual crews, detachments and details, and indeed entire subunits, have been moved about from place to place and have often operated independently for prolonged periods. Under these conditions we could not permit any weakening of party influence on the troops. The political organizers, party committees and party buros constantly monitored the disposition of the communists and if required set up temporary party organizations in the control organs, combined subunits and commands. There was also another special feature: because of the reallocation of communists by unit, with the permission of the Main Political Directorate of the Soviet Army and Navy, elections to the party committees and buros and the election of secretaries to the party organizations in the subunits took place by voting by a show of hands.

This practice had fully justified itself. There were always communists in the crews, details and groups and commands formed to carry out special work, and party organizations or party groups operated in almost every subunit. The political organizers and party committees paid particular attention to chemical protection and engineering subunits carrying out the most complex and crucial missions in the immediate vicinity of the reactor.

Practical party work included short operational meetings of communists and the ideological aktiv and discussion of the most important questions in the party organizations of the units and subunits. The atmosphere of the meetings was noticeably different. The reports and statements by the communists became shorter and pithier. The tone of the discussion was dictated by the situation itself. If people spoke they kept to the point, and they criticized not the shortcomings but the perpetrators, and the proposals were all specific. The decisions adopted by the meetings were also laconic. They charged the communists for action and clearly defined the place and role of each party member in the fulfillment of crucial tasks.

I recall one party meeting at which the agenda consisted of the following: "On the personal example of communists in the accident cleanup." This meeting took place in the battalion where the party secretary is Capt K. Ovchinnikov. The day before the subunit had received orders to carry out complicated work in the immediate vicinity of the power station. The meeting was short and the statements by the communists specific and businesslike. A decision was adopted unanimously: "The communists must act as if in battle."

The first to arrive for the mission was the battalion commander, communist Capt P. Zaborovskiy. With him were his subordinates, volunteers, Jnr Sgt P.

Avdeyev and Cpl Yu. Korshunov. Working at the fourth unit in a radiation situation that allowed the presence of people for no more than 20 minutes, despite the extraordinary complexity of the task they managed to carry out the necessary operation. "A man of astonishing daring": this was the assessment made of Petr Pavolich Zaborovskiy by the chairman of the government commission.

The party assignments for communists were also somewhat different from those in a normal situation. Mainly they were directed to carry out individual work with people, provide comprehensive information for personnel, pass on party and government decisions to the troops, and explain the tasks facing them. Despite the fact that it was sometimes difficult to gather the communists together, the procedure established during the first days has been observed undeviatingly: each member and candidate member of the CPSU provides his party organization with an account of the fulfillment of his assignments. This keeps people alert and enhances their sense of responsibility.

The assignments entrusted to the communists have been very varied. But one thing is always constant for everyone: carry out individual work with the troops. Here in Chernobyl, in an extreme situation, the communist-leaders must be close to people and know about their thoughts and moods and needs. And it must be noted that the political organizers and the party committees and buros did manage to restructure themselves quickly and decisively abandon speechifying and the directive method of leadership, and focus their efforts on organizational work in the units and subunits.

The upright party word has played the main role in the mutual relations between chiefs and their subordinates and between communists and nonparty people. The commanders and political workers have not hidden from personnel the true scales of the tragedy and have honestly talked about its causes and constantly informed the troops about the course of the accident cleanup. Neither have the complexity of the tasks set for the troops and the degree of possible risk been understated. This has been largely instrumental in insuring the conscious nature of the soldiers' and officers' actions and behavior. In dealing with the calamity most of them have shown a high sense of civic maturity, patriotism and loyalty to their military duty.

One of the main tasks for commanders, political organizers and the party aktiv during the initial period was to help the troops overcome the psychological barrier resulting from lack of knowledge of the situation in the region, the danger of being at the sites of hot spots of contamination, and their lack of experience in working under those conditions. Accordingly, during the course of the relocation of units and subunits to their designated regions the political organizers and party organizations carried out extensive explanatory work among personnel concerning the specific nature of the actions they were about to take, and they helped them to organize study of the instruments for radiation monitoring, protective clothing and safety measures when doing work in zones of elevated radiation. A series of leaflets was prepared and issued on actions in the region of radioactive contamination, together with pamphlets that described the courage and selflessness of the troops who had been the first to arrive to clean up after the accident.



The political organizers and party committees recruited specialists from the medical and chemical services and scientists for active participation; these people used their knowledge to explain to personnel in a well-argued manner the specific features of carrying out decontamination measures using the shift method, along with safety measures, and they taught personnel to use the radiation monitoring instruments and protective gear. These and other measures carried out on an operational basis made it possible to relieve the troops of their inner tension, raise their moral and psychological steadfastness and mobilize people to fulfill their assigned tasks.

Over time another problem was identified that had to be dealt with. Some soliders and sergeants quite quickly became accustomed to the danger and they lowered their vigilance and became careless with protective gear and prophylactic measures. After the first signs of this it was necessary to intensify individual indoctrination work with the troops, first and foremost the leading specialists and servicemen employed in work at the station, making up the groups and posts and engaged in radiation and dosimetric monitoring. Each communist in these groups had a specific assignment: to deal decisively with complacent attitudes and watch to insure that people's health was not subjected to unjustified risks and to warn them about showy courage and bravado.

The personnel of the units in which officers V. Luchitskiy and V. Khramkov serve have played a special role in the cleanup following the accident at the nuclear power station. From the very first day the chemical troops were in the most crucial and dangerous sectors, decontaminating the territory and buildings at the power station. The commanders and political workers and the party aktiv have therefore paid special attention to organizational and political work and focused on shaping in personnel a high psychological steadfastness, self-possession, courage, the ability to endure heavy moral and psychological stress, and the ability to make maximum use of radiation monitoring facilities, chemical protection and the capabilities of equipment in the interests of fulfilling their assigned tasks.

There are communists in every team and crew and group and on every decisive sector. Most party members and candidate members have been engaged directly in radiation monitoring and decontamination and work associated with it. This kind of arrangement insures a constant political influence on the servicemen. By dint of personal example the communists are mobilizing people for decisive, selfless action and for meeting planned tasks and norms in decontamination. Suffice it to say that more than 80 percent of the subunits led by communists and virtually all the detachments, crews and groups whose composition includes party members or candidate members are overfulfilling their planned tasks at 120 to 140 percent.

The units in which officers V. Luchitskiy and V. Khramkov serve have been awarded the USSR Defense Ministry pennant "For Courage and Combat Valor" for courage and labor heroism shown in the cleanup operation at the Chernobyl AES.

Now, when the first results are available from party political work among the troops operating in the Chernobyl area, it can be said with complete justification that an important role in mobilizing the communists and all

personnel to carry out their civic and military duty was played by the personal example of the political workers and party leaders. They have remained loyal to the best traditions of the years at the front: to be in the foremost rank, to be wherever it is more difficult.

One subunit was assigned the task of carrying out complicated engineering work in the immediate vicinity of the reactor. The measures to prepare the equipment and personnel for the upcoming action were led by the deputy political commander Snr Lt V. Timoshenok and the secretary of the party buro, Lt V. Yelanskiy. Together with the other communists they held discussions with every soldier and sergeant, shared their experience, and talked about the specific features of the upcoming operation and safety measures in the zone of intense radioactive contamination. And when the command was given to start the work, officers V. Timoshenok and V. Yelanskiy were the first to move up to the reactor in the engineering machines, showing themselves to be models of highly professional, selfless action. Vying with the communists, all personnel displayed self-control and carried out in full the important mission assigned by the government commission.

The following fact demonstrates the strong influence exerted on the troops by this subunit by the political worker and the secretary of the party organization, and how their personal example mobilized their subordinates. When selecting people for the next task the unit commander decided this time to leave enlisted man P. Khomenko at the field camp. When he found out about this the soldier appealed to the officer: "I am a communist. My place is where it is more difficult. Allow me to go with the others." His request was granted. P. Khomenko fulfilled with honor his duty as a communist.

A recent meeting of the party aktiv of the units and subunits involved in the accident cleanup discussed the importance of the personal example of CPSU members and candidate members in carrying out engineering and decontamination work. Here at Chernobyl the names of Lt Col S. Oleynikov, who led the first group to clean up the most dangerous sector--the roof of the third unit--, Lt Col A. Sotnikov, who together with engineers V. Starodumov and A. Yurchenko raised a red flag at the top of a 150-meter-high pipe to mark the completion of this work, Capt N. Agafonov, Snr Lt N. Kulinich, are well known... Competing with them, most of the troops are showing themselves to be models as they fulfill with honor their service duties. However, when speaking of the high moral-political and professional qualities of the communists and members of the Komsomol, in the spirit of the times, those speaking at the meeting also sharply raised the problem of further improving work with people and of improving discipline, organization and special training for personnel.

Participation in the cleanup work has required from the troops not only courage and self-control and labor enthusiasm but also keen-wittedness, initiative and resourcefulness. Numerous examples could be cited of the rational use of gear and equipment and decontamination materials. Over the past months significant changes have been introduced and many mechanisms and devices have been improved.

The initiatives and efficiency proposals offered by the servicemen have been broadly supported by the political organizers and communists in the

engineering and technical services and are introduced into practice on an operational basis. Here is just one example. As the stream of vehicles delivering construction materials and other freight to the region of the AES grew, difficulties arose with respect to special handling for large-tonnage freight. The secretary of the party buro in one of the chemical protection subunits, Snr Lt V. Storozhuk, suggested to his commander that these questions be discussed with the officers and the counsel of the communists sought. Officers from the neighboring chemical protection units were invited to the meeting, along with superiors from the headquarters. A businesslike, useful discussion took place. Capt V. Kiselev, for example, proposed that a special filler be added to the decontamination mixture. This innovation made it possible to increase the work rate noticeably and improve quality. CPSU member Sgt S. Kravchenko offered another initiative: in his time off shift he would himself fabricate special ladders and trestles for special handling of nonstandard equipment, while during the "peak" hours the work would be done by larger crews. Introduction of the communists' suggestions made it possible to increase handling capacities at the special handling point by one-third.

The communists in the party organization that is headed by Maj M. Kuks are constantly searching for ways to make more rational use of engineering equipment. Over a 2-month period personnel in the subunit decontaminated 35 villages and they were the first to be sent to the populated points of Cheremoshnya and Nevelskoye. The chairman of the Ukrainian SSR Supreme Soviet Presidium, V. Shevchenko, has expressed his gratitude to these personnel for their selfless labor and initiative-filled actions. But perhaps the greatest reward for the troops has been the joy of the people who have returned to their own villages and again set to work on their own land.

To clean up as quickly as possible after the accident and restore the land to its previous state: this is the noble goal that everyone working at Chernobyl now lives for. Communists in the units and subunits have been the sponsors of many initiatives whose substance is to achieve overfulfillment of planned tasks everyday and reduce normativ periods. And people are responding from the bottom of their hearts to each such undertaking. The press and radio and television bring many examples of the selfless labor of the Soviet troops in fulfilling an important government task. During the past period two-thirds of personnel have been given incentives by the command and awarded certificates and have received letters of thanks from the Kiev Party Obkom and the Chernobyl and Polesk rayispolkoms. Many servicemen have received state awards. Major of internal services L. Telyatnikov and lieutenants of internal services V. Kibenka (posthumously) and V. Pravika (posthumously) have been award the title of Hero of the Soviet Union.

The lessons of Chernobyl, however, indicate that not all political organizers and party organizations have managed completely to restructure the forms and methods of their work under extreme conditions. Sometimes individual party organizers and organizations have lacked a sense of the immediate in carrying out planned measures, and of innovation and nonstereotype approaches to matters. The activities of members of the party committees and party buros have not been adequately high in all subunits. They have carried out their assignments conscientiously but have not always striven to display initiative and independence. In some political organs no mechanism has yet been set up

for training newly elected secretaries and party committee and buro members and for passing on to them the experience already gained in organizational and political-indoctrination work. This obliges the political organs to approach more thoughtfully the evaluation and analysis of what has been done and to further raise the activeness and combativeness of the party organizations and the perosnal example of communists in carrying out any task.

\* \* \* \* \*

The troops taking part in the cleanup following the accident at the Chernobyl power station fully recognize the great responsibility that has been placed upon them. With each passing day they are building up the rates of work in decontaminating the locality, populated points and the buildings and installations at the AES and in restoring the region to normal life. The first power unit is already operating in test mode and large-scale measures have been implemented to save the damaged reactor, and a large area has been cleared of radioactive contamination.

At the same time the misfortune at Chernobyl has once again reminded us that dealing with the atom requires the highest degree of discipline, sense of responsibility and knowledge of matters. We are focusing all party political work on further improving the organization of and special training for personnel and the cohesion of the military collectives, and instilling in people high moral and psychological qualities and a constant readiness for courageous and selfless actions.

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## POLITICAL

### LETTER CITED BY ESTONIAN WORKERS

Tallinn SOVETSKAYA ESTONIYA in Russian 14 Nov 86 p 3

[Article by A. Toom, ETA Correspondent: "Chernobyl Letters"]

[Text] I take it out of the mailbox and can hardly keep from opening it right here, in the darkness of the driveway. It is from there, from around Chernobyl, where those sent from Estonia are now working with others to eliminate the consequences of the accident. And among them are our loved ones and friends. How are things there, what is happening? After all, right next to them is still trouble, even though it has calmed down and is not so dangerous now. We would like to see them all with our own eyes. So we wait for the Chernobyl letters and worry, attentively reading their every line.

When Leonid Zakharov, foreman of one of the "Stroymekhanizatsiya" Trust administrations, was going off to Chernobyl, I made him solemnly promise that he would write often and in detail. I will not hide the fact that aside from friendly feelings there was also a professional interest here. And now you see before you the main thing that the journalist obtained from his accounts.

In just a few months a settlement appeared on the map of Zhitomir Oblast. It was still under construction, but already populated by people sent from three pre-Baltic republics. Its center is like a little tourist map of all the main attractions of their capitals. There is a symbol of Tallinn here--the Old Toomas, not on the spire of the town hall, but on the roof of a cafe. There is a symbol of Riga--a rooster on a fire tower, while Vilnius is represented by a miniature tower of Gediminas rising between the buildings of the dining halls. In the evenings there are many people here. The well thought-out interior, the cozy atmosphere and the excellent provision with food products have made the cafe very popular. Nevertheless, the first concert of the ensemble recently formed in the settlement was not held here, but in the city of Pripjat. It has more people and higher status. The ensemble, which not without humor has taken the name "X-ray", is a source of pride for the people sent from the Prebaltic region. We must admit, the name is a strange one. If the fellows were really in constant danger, they probably would not joke about it. They simply attuned themselves to these same dangers which they had heard so much about. But having come here, they find nothing which would tickle their nerves or give the hope of exciting imaginations of their friends with their stories after returning home. These are ordinary working days, quiet people, and a well-ordered everyday life. There are only traces of the trouble which occurred here over 6 months ago, found in the form of warning signs near roads and empty forests.

The Chernobyl letters say little about the work. "We are building and performing decontamination work." From time to time small detachments are sent from the settlement into the zone of the AES [atomic power plant]. These, with others, participate in liquidating the consequences of the accident there. They also deserve considerable merit for the fact that the plant has once again begun to produce electrical energy. And as for the sentiments of the labor, these are evidenced in the slogan adopted by the Komsomol members from the Baltic region: "To work in a Stakhanovite manner in a dangerous zone." This is how they work, united by their common desire to eliminate all traces of the accident as soon as possible. Clear evidence of this are the high state honors awarded to a number of the fellows from Estonia. On the anniversary of the Komsomol, many were awarded commemorative badges of victors of the labor watch and of the 10 shock decades issued at the initiative of the Komsomol Central Committee.

12322

CSO: 1800/180

## POLITICAL

### KOMSOMOL CONFERENCE, ELECTIONS HELD

Moscow KOMSOMOLSKAYA PRAVDA in Russian 7 Dec 86 p 2

[Article by L. Gushchin and P. Polozhevets, KOMSOMOLSKAYA PRAVDA special correspondents: "Testing: Reports and Elections in the Komsomol". Notes on the reports-election Komsomol Conference held at the Chernobyl Atomic Power Plant]

[Text] The road curved to the left, and we entered Zelenyy Mys. The sign "20" whizzed by. The driver did not have time to reduce his speed, and in 100 meters a gallant sargeant motioned him to the side of the road. "You're breaking the law!", he said sternly. "This is almost the city, and there is so much building machinery". The settlement of Zelenyy Mys has grown from out of nowhere in the last 6 months. It is surrounded on three sides by a sleepy forest. On the fourth side in the grey distance we see the Dnieper River, overcast in the fall.

This is a special settlement, a duty watch settlement. For the first time in the country it has been necessary to work by the duty watch method at an atomic power plant. The workers spend half a month here, and half a month in Kiev. They have a home here, and a home there. It is even hard to say which is most dear. They go from here to their shift at the power station. When they come back, they must rest, relax, and regain their strength. This means that everything must be nearby, close at hand, and in time. They must be able to get a haircut, clean their clothes, and have them repaired. They must be able to find their favorite paper in the kiosk and a detective novel in the library. They must be able to buy a present for their wife or young son. But for now there are enough problems: sometimes they turn the heat off, sometimes there is no water, and sometimes the builders damage the cable.

Yevgeniy Ivanovich Ignatenko, general director of the association conducting work in the zone of the AES, proposed that the Komsomol committee become the chiefs of the settlement. The main thing, he said, is not to be permanent hotel guests here. All complaints--a burned out light bulb, a leaky faucet, a tight lock--are directed to the administration. In one's own house one must be the master...

The power plant has come alive. It is slowly, painfully getting well. Even the cleanliness at the plant is like that in a hospital. There are white nylon shades on the windows and flowers in the corridors. The first and second units are already giving off current, and have assumed full load. These are dry, ordinary words. But how much has been done so that they could be so calmly and assuredly spoken...

Every bit, every corner had to be cleaned inside and out. Thirty centimeters of soil were removed from the power plant's territory. The equipment was repaired and part of it replaced. The operation of all assemblies and instruments

was checked. Additional measures for safety of the units were implemented. Special new air conditioners were installed. Not a single speck of dust gets into the building.

The fourth reactor has now been fully isolated. The newspaper described how the "pillow" was laid, how the cascading wall of the "sarcophagus" was erected, and how almost 200 tons of metal structures were raised to a height of 60 meters. A dividing wall was to have been erected between the fourth and third units in order to isolate the section which had not been damaged and to protect it against radiation. They assembled it quickly and had only to pump in the concrete. But the concrete poured out through the cracks. They had to be sealed from the side of the fourth unit. In May one of us was working a shift at the first unit asked the shift foreman to let him into the machine room for a minute. The fourth unit was visible within 600 meters. Heavy radiation leakage made it impossible to come near. No technology could help to patch up the wall. Only people.

Boris Ivanovich Burmatov pondered over this wall for a long time. For hours he rolled the wood lathes in his hands. He folded and bent sheets of paper in every way possible. He found an answer. The shields covering the cracks could be made quickly, almost instantaneously. He went to "sew up" the first crack himself. He was relieved in 5 minutes--and so it went all day. 150 people, one after another.

For a long time we stood and looked at the "sarcophagus", an unusual monument to the courage and professionalism of the people who quieted the "atomic genie".

Only 7 months have passed since the day of the tragedy.

Pozdyshev, the plant director who assumed the duty a month after the accident, got tired in the course of the day. In the morning there were hundreds of new problems and telephone calls. Many technical questions had to be resolved. But the conversation always came back to those who work at the plant.

"Without them, machines and the most brilliant technical ideas are helpless," said Pozdyshev, saying good-bye to us.

People were also the main topic of discussion at the plant's reports-elections Komsomol conference. A serious matter makes a man noticeable. The larger it is, the greater its scope, the more persistence it requires, the greater becomes man. In Chernobyl people show themselves fully for what they are, in all their essence, because their actions are often on the borderline of risk, and even more often, it would seem, exceed both human powers and human capacities. Life is usually measured in years and months. Here it is measured in minutes and seconds--to finish, to have enough time.

Here is one of the "operational sheets": "The repairmen of the reactor shop have completed the replacement of the "shadry"--devices for controlling the expenditure of contour circulation water--on the "left side" of the first unit. They have replaced over 500 of them. Viktor Kharin's team has particularly distinguished itself, overfulfilling its task by two times." And between the lines: high temperature, the sweat mercilessly pouring in our eyes, at times there was no room to move it was so cramped, and a high radiation field.



This is how Arkadiy Uskov, Nikolay Solovyev, Andrey Tormizin, Aleksey Breus, Igor Belyayev and hundreds of others worked. But there were also those who lost their heads and were not able to collect their wits and begin to act. The Komsomol committee feels responsible for the fact that there were several first secretaries among such people. It had not looked closely enough before, when it overlooked trifles, when much was customarily forgiven for these "leaders".

The reports and elections in the primary groups were difficult. Work was proceeding under the duty watch method. The structural subdivisions were being reorganized. Shops and sections were being split and combined. Newcomers were serving as Komsomol organizers. The help of the Pripyat Komsomol gorkom and the Kiev obkom was needed. Alas, there was such a shortage of this help.

In the spring and summer, visitors came almost every day to Ilovnitsa and Belyye Parokhody. These were famous singers, actors, writers and poets. Now it is quiet. After all, one can rest in Kiev, they say. But it is a pity. All the fellows are newcomers to the republic's capital. They don't know the city very well, and are not very well versed in its cultural life. It is practically impossible to easily buy tickets to interesting plays, concerts, international sporting events, and exhibits. Many told us that they would gladly participate in clubs at their place of residence and in sports sections. These questions are on the Komsomol agenda.

"...Build the structure of the primary sectors in open shifts, duty watches and brigades in such a way as to be convenient not for the operation of the Komsomol committee, but for the people, so that there will be a result," said S. A. Kostin, second secretary of the Ukrainian Communist Party Pripyat gorkom, at the conference. "We do have the experience. At first one Komsomol organization was formed within the radiation safety service. We lived and worked with it for a month-and-a-half, and saw that it was not suitable. We decided that we needed four of them, one in each subsection. The task immediately became noticeable. And we have many of these tasks--to set up competition between Komsomol youth collectives and to rid ourselves of formalism, to seriously engage in scientific-technical creativity, and to improve intra-union work..."

Later, after the conference, when Aleksandr Bocharov (who was again re-elected as Komsomol committee secretary) pauses at the entrance to the AES, he will look at the balloon hanging over the fourth unit and say: "After all, it is good that we held the conference here at home, at the plant, instead of in Zelenyy Mys or Chernobyl". And all of them--the new Komsomol committee, would put their arms around one another's shoulder and go to the bus. Kostin would remind them as they walked away: "We expect you at the party gorkom in two days with proposals, a program, and ideas..."

12322

CSO: 1800/181

## POLITICAL

### REPORT ON 13 DECEMBER PRESS CONFERENCE

Kiev RABOCHAYA GAZETA in Russian 16 Dec. 86 p 3

[Article by A. Tertychnyy: "The Most Complex Step is Behind Us". Report of RABOCHAYA GAZETA special correspondent from the press conference at the Chernobyl Atomic Power Plant.]

[Text] A press conference was held on 13 December at the Chernobyl AES for journalists from central and republic newspapers, radio and television. Answering questions were the managers of the Chernobyl AES, representatives of the state commission, Goskomgidromet [State Committee for Hydrometeorology and Environmental Control], Gosatom-energo [State Atomic Energy Committee], Institute of Atomic Energy imeni Kurchatov of the USSR Academy of Sciences, the USSR Ministry of Health, and the UkSSR Ministry of Health.

For the first time since the accident were were all going to Chernobyl together. For the first time we did not have to take off our "civilian" clothes and change into special clothing and put on respirators to enter the territory of the station.

These facts in themselves signified a qualitatively new stage in the persistent and continuous work on normalizing the situation at the AES, within a 30-kilometer zone.

And even in the plant itself, where the journalists visited the unit control center, in the machine room they had only to change their shoes, put on coats and caps. And this is a most common ritual for visiting any atomic plant.

The first to speak at the press conference was the director of the Chernobyl AES, E. N. Pozdyshev. He reported on the completion of a particularly important stage in work on liquidating the consequences of the accident. As a result of the construction of a set of protective structures and the implementation of necessary measures for ensuring safety, it was possible to place the plant's first and second power units into operation. Since resuming operation, they have already yielded 1.6 billion kilowatt-hours of electrical energy.

E. N. Pozdyshev stressed that it was possible to perform the colossal volume of work in several months thanks to the selfless labor of the Soviet people and the

advantages of the socialist order. This fact is acknowledged not only by our friends, but all objectively thinking specialists. Among them are those who are not distinguished by their sympathies to our country. For example, at the international technical conference on nuclear risk which was recently held in London, foreign specialists came to three conclusions. First: all the actions of the emergency services on liquidating the consequences of the accident at the Chernobyl AES were exemplary. Second: the accident in Chernobyl does not remove the questions of development of nuclear energetics, since there is today no real alternative to this process. Third, and in my opinion the most important, said E. N. Pozdyshev, is that only under conditions of socialism has it proven possible to perform such a colossal volume of work in so few months. As an indirect comparison we may cite the example on liquidation of the consequences of the accident in the USA at the Three Mile Island Nuclear Power Plant. The first stage of analogous work there required around 5 years, although the accident had significantly less severe consequences.

The buildings and equipment of the third unit are now undergoing decontamination in order to ensure its start-up in the second quarter of next year. There are ongoing preparations for continuing construction of the fifth and sixth units of the plant.

And how is the fourth unit, which has been sealed in a concrete casing?

This question was answered by the representative of the USSR Academy of Sciences Institute of Atomic Energy imeni Kurchatov, V. F. Shikalov: "There are many rumors that 'the reactor has begun to breathe', 'the wild beast is once again raging', and so forth. To this I can responsibly say that from the moment we began regular stationary observations, which have been conducted since 2 June, there have been no deviations in the course of the natural physical processes taking place inside the zone. We have not encountered any miracles or unexpected occurrences. The processes are occurring in accordance with known physical regularities.

The unit's protective structure ensures isolation of the remnants of the destroyed reactor from the environment. We can name two levels of protection. The first is the structure itself (the sarcophagus). The second level is our ever increasing knowledge about the processes taking place within. We can judge these by the numerous sensors and instruments located around the reactor.

The known regularities and our computations and predictions which stem from them coincide with the actual observation data. Specifically, as we had presumed, the radioactivity inside the structure is gradually dropping and by 1 May 1987 it should be only 2/5 of the level recorded in June.

A separate production subsection manages this complex engineering structure, with its powerful ventilation system and developing system of computer technology. Scientists and institute specialists who designed the sarcophagus help to provide technical servicing and control.

The plant's trade union committee deputy chairman, A. V. Yurkin, told of the prospects for solving the collective's social problems at the Chernobyl AES.

He reported that the plant personnel have been assigned apartments in Kiev and are now working by the watch shift method. The collective will live under these conditions until it is moved to the city of Slavutich, which is being built for the power plant workers near the Nedanchichi Plant in Chernigov Oblast, and will be completed within 3 years. Its population will initially comprise 20,000 people, and subsequently--up to 30,000. This will be a compact city comprised of five residential complexes. The average living space allotted per resident will be 15 square meters. A complex of structures for trade, communal and consumer services will also be built. Construction subsections from 7 union republics will participate in the development of the city.

In answering the question on the radiation situation, V. F. Shikalov stressed that the rumors about insignificant fluctuations in the radiation background which are harmful to man have no objective substantiation. The natural level of radioactivity varies depending on the intensity of the solar radiation, the intensity of the cosmic rays, the chemical composition of underground deposits, and other factors. Under the influence of such purely natural phenomena, and regardless of the artificial effect on the environment, the value of the background may vary by 3-5 times.

Goskomgidromet representative A. A. Shekhovtsov noted that the level of radiation outside the 30-kilometer zone has normalized. Today in Kiev, for example, the background level is close to what it was before the accident, and approximately corresponds to the average level of such cities as Moscow and Leningrad. The situation has also stabilized within the zone. As a result, there are already 3,500 people in Chernobyl who are working by the watch shift method on eliminating the consequences of the accident. Several blocks in the city of Pripyat are also ready to take people in to live during their duty shift period. A number of populated areas have been prepared for return of their population.

The re-evacuation of the people is planned for late winter and spring of next year.

\* \* \*

Thus, the most complex, the most alarming, and the most dangerous step in liquidating the consequences of the accident is behind us. Thousands of people have performed such a unique task that we are still unable to give it a complete and adequate evaluation. We need time to find the exact words.

Yet for now we still see from the bus window the blue signs with white letters: "Attention! Roadside contaminated". These signs as well as the yards and houses which still stand empty remind us that the count of losses is still not finished. Much still remains to be done, notes the report of the CPSU Central Committee and the USSR Council of Ministers, to fully implement the outlined program on eliminating the consequences of the accident at the Chernobyl AES.

12322

CSO: 1800/180

## POLITICAL

### PRAVDA EDITORIAL LAUDS RECOVERY WORK

PM191325 Moscow PRAVDA in Russian 16 Dec 86 First Edition p 1

[Editorial: "The Chernobyl Exploit"]

[Text] A particularly important stage in the work to eliminate the after-effects of the accident at the Chernobyl AES has ended. For 7 and 1/2 months our attention has been fixed on the events which took place near the small Ukrainian town of Chernobyl. The CPSU Central Committee and the USSR Council of Ministers noted that the completion within a tight schedule of the large-scale tasks involved in eliminating the after-effects of the accident was made possible by the selfless and heroic labor of workers, engineers, technicians, scientists, specialists, and Soviet Army servicemen. During these months tens of thousands of Soviet people from all parts of our motherland have worked at the Chernobyl AES and in the zone around it.

The exploit of eliminating the after-effects of the Chernobyl accident was due to the heroism of the firefighters and specialists who were first to feel the effects of the nuclear disaster. They localized the accident and prevented it from spreading to other power units.

The Chernobyl exploit was due to the selfless work of party, state, and public institutions, which in the briefest possible time organized the population's evacuation from the danger zones in the Ukraine and Belorussia. In all, around 116,000 people were evacuated. They were given material assistance. They have all been found work and around 12,000 homes and more than 200 social and consumer facilities have been built for them. A vast amount of work has been done to safeguard the population's health. We bow in memory of those who gave their lives in the battle against the elements, but the main credit is undoubtedly due to Soviet medicine for the fact the majority of the 237 people affected by radiation sickness have already gone back to work.

The state took care to provide normal living and working conditions for the AES operational staff and the construction workers who are taking part in eliminating the after-effects of the accident. The Zelenyy Mys tour-of-duty settlement [vakhtovoy poselok] has been built in Kiev Oblast. Some 8,000 apartments have been allocated in Kiev and Chernigov, and the construction of a new city for power workers has begun.

The Chernobyl exploit was due to the selfless labor both of the AES operating staff, who did not leave their posts at the station for a second, and the construction workers who participated directly in the work on the AES premises. And it was due to the inspired labor and creative search of scientists and specialists. Because they were the first in the Soviet Union or the world who had to carry out the work of mothballing a stricken power unit.

Today the complex of installations protecting the fourth reactor had been commissioned. It has ceased to be a source of radioactive environmental pollution. The purpose-built installation was planned by Soviet scientists and specialists and has been given the necessary equipment, diagnostic apparatus, and monitoring facilities. The "tomb" consists of around 300,000 cubic meters of concrete and 6,000 tons of metal structures, and the most modern equipment was used during the construction. Work was carried out to decontaminate the AES at the same time, thereby making it possible to commission power units at the Chernobyl AES with a capacity of 2 million kilowatts.

As is well known, a large area was affected by radioactive pollution. It took tremendous efforts to decontaminate 500 population centers, almost 60,000 homes, and various buildings and installation, as well as kolkhoz and sovkhos fields and woods. Water resources have been protected. Embankments and specialized defenses have been built in river flood plains. As a result of the Dnepr and other rivers and reservoirs were not polluted and water in them corresponds fully to health norms. Decontamination work is going on, and this will make it possible to restore the affected agricultural land.

The CPSU Central Committee and the USSR Council of Ministers note that there has been a fundamental improvement in the radiation situation in the 30 km zone and adjacent territory. However, work is still not complete and much remains to be done. The party and government have instructed all those taking part in this most important job not to let the pace of work slacken and to carry out in full the program to eliminate the after-effects of the accident at the Chernobyl AES.

It has repeatedly been stressed in CPSU Central Committee Politburo decisions and M.S. Gorbachev's speeches that the lesson of Chernobyl is undoubtedly that, in view of the continued development of the scientific and technical revolution, questions of equipment reliability and safety and questions of discipline, order, and organization in the operation of complex equipment are of paramount importance. The strictest demands must be made on everyone everywhere. The necessary measures are now being carried out to increase the safety of existing AES' and of those under construction. Increased demands are being made on production equipment, discipline is being increased, and service personnel are being retrained. The monitoring of AES work has become stricter. A USSR Ministry of Nuclear Power Industry has been created and an interdepartmental scientific and technical council on nuclear power industry questions has been formed subordinate to the USSR State Committee for Science and Technology.

Undoubtedly all these measures to a great extent ensure the safe development of the new power industry sector. However, the lessons of Chernobyl demonstrate that each of us in every work place must work with greater responsibility and

to a high standard. The party committees of organizations and departments producing machinery and equipment for nuclear power stations as well as operational workers using that equipment must constantly monitor the various aspects of work safety problems.

The scale of the accident at Chernobyl bears no comparison with a nuclear explosion: any nuclear explosion would have more terrible consequences. But the accident showed mankind once again the danger of the power of the atom when it is out of control. Its serious after-effects called to mind the tremendous responsibility of all states for averting the nuclear threat. Very important international documents have been adopted at the USSR initiative. The convention on prompt notification and assistance in the event of a nuclear accident was ratified in November by the USSR Supreme Soviet Presidium. That is just the first step, however. The ultimate aim is the total elimination of nuclear weapons on earth.

The bells of Chernobyl sound out a warning of the threat hanging over our planet. The Soviet people will make every effort to divert it from mankind.

The motherland has rated highly the exploit of all those people taking part in eliminating the after-effects of the accident. Those who must distinguished themselves have been given high state awards in recognition. And when paying tribute to the heroism and courage of specialists, servicemen, scientists, and workers we repeat again and again that the feat of eliminating the after-effects of the accident at the Chernobyl AES is the accomplishment of all the Soviet people.

/12232

CSO: 1800/177

## POLITICAL

### LACK OF RAILWAY SAFETY NOTED

Kiev RABOCHAYA GAZETA in Russian 27 Dec 86 p 2

[Article: "Place of Work--the Road"]

[Text] The correspondence entitled "Place of Work--the Road" published on 30 September of this year discussed the shortcomings in the work of the organizations of certain ministries and departments on ensuring the safety of highway traffic in the zone adjoining the Chernobyl AES [atomic power plant].

A. Ya. Fomenko, deputy chief of the GAI [state automobile inspection] administration of the UkSSR Ministry of Internal Affairs, reported to the editors that the number of serious traffic violations has recently decreased. However, we cannot say that the discipline on the highways in the zone has significantly increased. Already after the newspaper's announcement, over 60 drivers have been detained for drunk driving.

This is evidence of the fact that many enterprises are still insufficiently utilizing the moral training capacities of the labor collectives, and that the role of the managers responsible for transport operation is low. In October, 12 officials were brought to administrative responsibility for sending drivers on line who were not sober. Among these officials was the chief of the laboratory at service station No 7 of "Ukrneftegasstroy", A. V. Mushchenko; mechanic at the ATP 33030 of UkSSR Minavtotrans [Ministry of Motor Transport I. I. Vrishch, and RES [regional power station] mechanic at the USSR Ministry of Power and Electrification, P. P. Skorokhod.

By order of the director of the TPO [transport consumer society] "Yuzhatomenergo-stroytrans", section director A. P. Kostyuchenko was dismissed from his duties and sent away for work on the watch shift for arriving at his work station in an inebriated state.

The highway and communal services have not improved their work. As before on many sections of road there are pot-holes and the road shoulders are in disrepair.

The section of road between Kopachi and Chernobyl, which leads directly to the Chernobyl Atomic Power Plant, is cause for concern. If immediate measures are not taken to repair it, this road will deteriorate. We might add that the indicated shortcomings continue even after V. D. Sidorenko, chief of the AEU-625 which services the roads in the area, and A. P. Dikiy, chief of the Chernobyl



Combine of Communal Enterprises, have been brought to answer for their casual attitude toward the fulfillment of their responsibilities.

After the publication of the article and the presentation of corresponding information to the GAI, the state commission pointed out these shortcomings to the ministry and department representatives.

12322

CSO: 1800/180

## POLITICAL

### FUEL SHORTAGES BLAMED ON ACCIDENT REPAIRS

Moscow IZVESTIYA in Russian 27 Dec 86 p 2

[Article by A. Kleva, Kharkov correspondent for IZVESTIYA: "The Sound of Empty Tank Cars"]

[Text] Three days ago in the Kharkov reporting station of IZVESTIYA the alarm bell went off: "Doctors of first aid station No. 1 are concerned. Late in the evening the city was hit by a major snowstorm. The streets are blocked with snow. It is very difficult to respond to calls for help. But that is not all: our service is issued gasoline in the amount of five liters per vehicle. We cannot satisfy all requests. We help most of the callers by giving advice on the telephone."

I did not believe it, and asked permission to ride in the "first aid wagon". We drove from filling station to filling station without success. Instead of receiving gasoline, we were the recipients of arrogant remarks: "You have already been given your five liters."; "Stop asking."; "You are not from our area."; "This vehicle is not on the special list."; and others.

At daybreak the situation was revealed in full detail: the streets of Kharkov were buried under a deep layer of snow deposited by the first snowfall, and public transportation had come to a halt. People put everything aside and reached for shovels. Only those motor transportation organizations equipped with refuelling facilities were operating. Orgtekhnik plant manager K. Karmanov was the first to interrupt the morning drowsiness of municipal officials: "Negligence on the part of the Goskomnefteprodukt administration has paralyzed the operation of enterprises. We cannot ship our products, and there are interruptions in raw material deliveries," said K. Karmanov. "The railroad demands that we unload the incoming freight cars. Look into the matter."

It was late in the evening before I was able to meet with I. Kotlyar, deputy chief of the territorial administration of Goskomnefteprodukt. He blamed everything on the extraordinary situation and on endless appearances before oblast officials.

"In the summer the oblast used up large amounts of fuels and lubricants on unplanned shock construction of settlements in Kiev Oblast for victims of the

Chernobyl AES accident," explained Kotlyar. "At that time many enterprises used up their fuel supplies ahead of time. There was no compensation: we were not given funds for deliveries not called for in the plan, and we suffered a shortage of 6,000 tons of gasoline and 4,000 tons of diesel fuel. On top of that, in the last quarter we were let down by optional suppliers: the Saratov, Lisichansk, Ryazan, and Tambov administrations of Goskomnefteprodukt stopped making fuel deliveries."

The point bears repetition: a chronic shortage of fuel delivery was evident as early as October. However, at that time none of the officials in Kharkov chose to look into the causes. They all hoped that deliveries above those called for in the plan would be made to compensate for the "Chernobyl" consumption. Only when the "fuel crisis" affected official cars and snow blocked the streets did they come to life and start to make inquiries.

It was determined that deliveries made by the above suppliers together with the Kremenchug refinery were short by 9,000 tons of gasoline. The major cause was a lack of tank cars on the Volga Line. The Southern Line uses about half a million tons of diesel fuel, and it received the full amount. Instead of working with the railroad people of the Southern Trunk Line to shorten the turnaround time of tank cars in their area, at least for the Kremenchug refinery (this alone amounting to hundreds of cars a day), the local suppliers started to furnish the line with fuel taken from reserves allotted to other national economic branches, mainly agriculture.

As a result, when December arrived the territorial administration was caught without a fuel and lubricant supply on hand. The ensuing practice of compromise and wait-and-see resulted in the fact that this time the Saratov administration failed to unload any of the 115 badly needed tank cars.

After being covered by snow drifts, which aggravated the already irregular operations of the oblast industry, the oblast officials started to complain loudly: union departments and collectives in supply enterprises started to receive phone calls and telegrams making requests and threats. Not a word was mentioned about their own mistakes and their inability to control tank car loading and unloading operations of the Southern Trunk Line in the Belgorod and Sumsk oblasts, where that was the cause of the grievous fuel situation. Also, the references to the aftermath of the Chernobyl accident were a clumsy attempt to cover up their mistakes and negligence.

In the final days of the year the industrial transportation enterprises of Kharkov Oblast have essentially ceased operations as they wait for petroleum products. The price is high for poor management on the part of many sections and specific individuals in the USSR Goskomnefteprodukt, including the top "rung" of the committee, where they sat and watched callously as the critical situation developed in the industrial northeast Ukraine.

The fuel situation in Kharkov Oblast remains the same -- a shortage of 7,000 tons. The amount of fuel remaining after the most critical needs have been met is only a fifth of the rated amount. The shortage is especially alarming in agriculture, which has no fuel supplies on hand whatsoever; personnel are forced to do the best they can under the circumstances.

13005

CSO: 1800/179

POLITICAL

DOLGIKH, SLYUNKOV TOUR KIEV, GOMEL OBLASTS

Minsk SELSKAYA GAZETA in Russian 10 Jan 87 p 1

[TASS item: "Trip to the Chernobyl Nuclear Power Plant, and to the Rayons of Kiev and Gomel Oblasts"]

[Text] On 7-9 January, V. I. Dolgikh, candidate member of the CPSU Central Committee Politburo and Central Committee secretary, visited the Chernobyl Nuclear Power Plant and the rayons of Kiev and Gomel oblasts. The questions in the center of attention concerned the further carrying out of large-scale measures to eliminate the consequences of the accident at that electric power plant, the guaranteeing of its safe operation, the carrying out of decontamination operations, and the providing of labor and everyday services for the evacuated population.

At the Chernobyl Nuclear Power Plant, he was familiarized with the operation of the two operating power units, with the preparation to activate the third unit, and with the organizing of the maintenance for the defensive structures on the damaged reactor. In talks with the workers at the electric power plant it was mentioned that the activation and stable operation of the power units are a major contribution to guaranteeing the reliable supplying of electrical energy to the south regions of our country. Already 2.8 billion kilowatt-hours of electrical energy have already been produced. Mention was made of the need for the strict observance of technological discipline, the constant raising of the proficiency level of the maintenance personnel, the improvement of the everyday services provided to them, and the intensification of labor safety measures.

In Chernobyl, with the participation of a governmental commission, the administrators of the appropriate ministries and departments, and the party and soviet agencies of Ukrainian SSSR, there was a consideration of the state of affairs and the plans for further operations to eliminate the consequences of the accident at the Chernobyl Nuclear Power Plant. Special attention was devoted to guaranteeing the precise implementation of the entire series of measures defined by decisions of the CPSU Central Committee and the USSR Council of Ministers with regard to this question, the increasing in the effectiveness of the decontamination of the territory of the nuclear power plant and the adjacent area, and the protection of the drainage area of the Dnepr. It was emphasized that the new stage of operations requires a high level of organization and the scientific substantiation of the decisions being

made. After visiting the Zelenyy Mys labor-watch settlement and Borodyanskiy Rayon, Kiev Oblast, the CPSU Central Committee secretary became acquainted with the living conditions of the operating personnel and the construction workers at the nuclear power plant, as well as the evacuated population, and inquired about their everyday living conditions, the rate to which jobs have been found for them, and the organization of trade and medical service.

In Bragin, Gomel Oblast, jointly with administrators of the party and soviet agencies of Belorussian SSSR, there was an examination of the rate of the operations and a determination of the next series of tasks to eliminate the consequences of the Chernobyl accident, which has affected a number of rayons in the republic.

In his trip through the oblast, V. I. Dolgikh was accompanied by N. N. Slyunkov, candidate member of the CPSU Central Committee Politburo, and First Secretary of the Central Committee of the Belorussian SSR Communist Party, and A. S. Kamay, First Secretary of the party's Gomel Obkom.

At a conference in Kiev, questions concerning the designing and organization of the construction of Slavutich, a new city for power workers, were discussed. Emphasis was made of the great importance of the accelerated fulfillment of those operations, the guaranteeing of their high quality, the comprehensive planning of the city, the prompt resolution of the transportation problems, and the creation of the production base necessary for this purpose.

Speakers at the conference included V. V. Shcherbitskiy, CPSU Central Committee Politburo member and First Secretary of the Central Committee of the Ukrainian Communist Party, and V. I. Dolgikh. Participants in the work of the conference included the administrators of a number of USSR ministries and departments, party and soviet agencies of the Ukraine, as well as of Georgia, Azerbaijan, Armenia, Lithuania, Latvia, and Estonia, the construction organizations of which have been rendering assistance in the construction of the city.

The CPSU Central Committee secretary visited in Kiev the Institute of Electrical Welding imeni Ye. O. Paton, of the UkSSR Academy of Sciences, and became acquainted with the work of creating and introducing a progressive technological scheme, equipment, and materials.

A discussion took place at the Central Committee of the Ukrainian Communist Party.

On his trip through Kiev Oblast, the CPSU Central Committee secretary was accompanied by B. Ye. Shcherbina, deputy chairman of the USSR Council of Ministers; A. P. Lyashko, chairman of the UkSSR Council of Ministers; B. V. Kachura, secretary of the Central Committee of the Ukrainian Communist Party; G. I. Revenko, First Secretary of the party's Kiev Obkom; and the administrators of a number of USSR ministries and departments.

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CSO: 1800/187

## POLITICAL

### IAEA'S BLIX HOLDS MOSCOW PRESS CONFERENCE

PM221433 Moscow PRAVDA in Russian 17 Jan 87 Second Edition p 6

[TASS report: "AES: Safety and the Human Factor. Press Conference at the USSR Foreign Ministry"]

[Text] No news from Chernobyl leaves us indifferent, whether it is about the return of residents evacuated from the 30-km zone, the restart of the power station's No 1 and No 2 units, which remained silent for several months, the decoration of the heroes who displayed selflessness in eliminating the consequences of the accident, or the concert to raise money for the Chernobyl fund.

Soviet and foreign journalists perceived the 16 January meeting with IAEA leaders in the USSR Foreign Ministry Press Center not only as a sign of the lifting of the state of emergency, but also as the start of equally important work by the world press to report the joint efforts by states to strengthen the safety system of the world nuclear power industry.

IAEA Director General H. Blix announced that, as during the first trip 8 months ago, the IAEA delegation was shown all installations at the Chernobyl AES. First and foremost, he noted, we were of course interested in the power station's No 1 and No 2 units, which have been restarted. We visited them while their equipment was operating at full speed, and the AES chief engineer briefed us in detail about all the changes made to the technology and the safety system. We are satisfied with the conclusion drawn by me and my colleagues—my deputy L. Konstantinov (USSR), and M. Rosen (U.S.A.), chief of the IAEA Nuclear Safety Section. Virtually all our proposals and all IAEA recommendations on additional measures for power reactor safety have been fully taken into account.

Dr. M. Rosen dwelt on certain evaluations of the technical and radiation condition of installations at the Chernobyl AES. In his view, the power station's No 3 unit, which is in the immediate vicinity of the damaged unit, can be restarted after the completion of decontamination work in the second half of this year. We were, he said, in the immediate vicinity of the No 4 unit, entombed inside the concrete sarcophagus, and established that radiation emissions there stand at only 3 millicurie, which is 10 times lower than the level caused as a result of normal AES operation.

We were told, M. Rosen said, that the additional measures taken there to ensure safety will result in some increase of production costs per kilowatt-hour of electricity, and this gave us a feeling of satisfaction, because it is a question of the price of life, of the human factor, as people in your country now say. In this context, he emphasized, we highly appraised the efforts by Soviet engineers aimed at stricter regulations for work by AES personnel.

Answers were then given to journalists' questions.

A Japanese television representative wanted to know whether there is a chance of the 30-km zone around the AES being settled in the near future.

Answering this question, the IAEA director general announced that 24 settlements in the Ukraine have undergone decontamination and can receive people. Two settlements are already populated. Decontamination continues in Belorussian population centers. For the time being, however, no swift return of inhabitants is envisaged in the 10-km zone. As for the situation beyond the 30-km zone, it can be confidently said that the contamination level in this region is extremely low. Decontamination work is practically completed at the AES and around it.

A question was asked about the contamination level of water and soil both inside and outside the 30-km zone. Answering, H. Blix emphasized that indicators there are extremely encouraging. They are much lower than current limits. And, he declared, the measures taken to ensure that spring floods do not result in higher radiation levels seem even more important to us. Numerous dikes have been erected for this purpose.

Journalists asked about the safety system at No 4 unit. M. Rosen assured them that a high standard of reliability has been ensured in the system.

Answering a question from a Swiss radio correspondent about the measures being taken to protect the population's health, the participants in the press conference announced that a large number of people are being medically monitored. This will continue in the future. There is discussion about the need to convene an international conference of experts to elaborate the methodology of medical monitoring.

International cooperation at the IAEA level, which has entered a new stage at the USSR's initiative, H. Blix declared, has yielded good results. Member states have learned the appropriate lessons from the accident and have shown interest in elaborating safety procedures at nuclear power stations. Two international conventions have been elaborated and, by the way, the USSR was one of the first to ratify them.

Answering the question: "Do you consider that our existence without nuclear weapons is realistic?" the IAEA director general said:

"Even though our organization deals with the peaceful utilization of nuclear power, it has accumulated solid experience which may prove useful for success in talks in the disarmament sphere. I am an optimist, and I believe that every step along the path to a nuclear-free age is important now. To a certain extent, Chernobyl could be an example of the new thinking and the mutual trust which we displayed so vividly in the last few months in the sphere of the safe use of nuclear power."

The participants in the press conference answered other questions by journalists.

H. Blix left Moscow on the same day.

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CSO: 1800/191



POLITICAL

RETURN TO 30 KILOMETER SAFETY ZONE QUESTIONED

Minsk SOVETSKAYA BELORUSSIYA in Russian 20 Jan 87 p 4

[Unattributed article: "Will the People Return?"]

[Text] "Although almost nine months have passed since the accident at the Chernobyl AES, discussions about this tragedy have not subsided. Some people say that people will never return to within a radius of 30 km of the area. Is this true?"

--S. Kolesnikov (resident of Minsk)

The words of H. Blix, general director of MAGATE [International Atomic Energy Agency], at a press conference held recently at the USSR Ministry of Foreign Affairs might serve as a response to the above question: "In the Ukraine there are 24 settlements in this area which have already been decontaminated and which can take people back. Population centers in Belorussia are still being decontaminated. However, there are no plans for people to return to within a 10-km area anytime soon. As for the situation outside the 30-km zone, we can say with confidence that the contamination levels are quite low in this area. Decontamination operations have practically been completed in and around the AES."

In reply to the question concerning the water and ground contamination levels within and beyond the 30-km zone, H. Blix had this to say: "All the indications are extremely reassuring here. They are far below the existing ceilings. But the measures taken to ensure that the spring floods do not lead to increased radiation levels seem even more important to us. A number of levees have been raised to prevent this.

As Aleksandr Adamovich Grakhovskiy, chairman of the Gomel Oblispolkom told the editorial board: "The population centers in the areas adjacent to the Chernobyl AES are being decontaminated according to our program. The residents of 12 villages have already returned to their permanent residences."

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CSO: 1800/189

POLITICAL

BELORUSSIAN TU CHAIRMAN INTERVIEWED ON CHERNOBYL AID

PM301151 [Editorial Report] Moscow PRAVDA in Russian 20 January 1987 First Edition carries on page 3 under the headline "Chernobyl AES. Chronicle of Events: Surrounded by Concern" a 1,500-word interview between V. Goncharov, chairman of the Belorussian Trade Union Council, and PRAVDA correspondent A. Simurov (date and place not specified). Goncharov describes how Belorussia's trade unions, acting together with party, soviet, Komsomol, and economic organs, worked quickly to provide housing, clothes, food, warmth, and comfort to the AES disaster victims. For example, 57 sanatoriums, dispensaries, recreation centers, and tourist bases; 82 young pioneers camps, 71 labor and recreation centers, and 32 kindergartens in various parts of Belorussia were "immediately" made available to evacuated children and pregnant women. Staffs were set up "in every oblast" and at the Belorussian Trade Union Council to cater for children's needs, and up to 10,000 children a day were sent by special trains to recreation centers. "At the assembly centers all the evacuees from rayons in Gomel Oblast adjacent to the AES underwent radiation checks and decontamination and received comprehensive medical treatment." Goncharov admits that "not everything went smoothly. There were instances of an inattentive attitude and the slow solution of questions, but they were isolated incidents in a sea of human kindness." Goncharov notes that more than 9,700 families were rehoused in the countryside "in a short period" and that Belorussia's trade unions played their part in this work. Housing was built and work was found for 6,238 people. Goncharov concludes by outlining measures to be taken in the future to ease the plight of the evacuees from the affected zone.

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CSO: 1800/191

## POLITICAL

### BRIEFS

CHERNOBYL ACCIDENT VICTIM COMPENSATION--In response to the question: "What assistance has been rendered by Gosstrakh [Main Administration of State Insurance] organs to victims of the Chernobyl accident?", submitted by G. Voropayeva of Novokuznetsk, an answer is provided by K. A. Pavlenko, deputy chief, Main Administration of State Insurance. He states that in the period following the accident, USSR Gosstrakh organs paid out a total of 107.2 million rubles to citizens evacuated from areas adjacent to the Chernobyl AES. The above total includes payments made for: structures proper, 80.4 million rubles; household furnishings and personal property, 17.6 million rubles; livestock, 1 million rubles. In Gomel Oblast, for example, the average payment per household amounted to more than 14,000 rubles. The amount of compensation was based on the insurance estimate of cost of structures, family make-up, and difference between price of insured animals and the amount to be paid by purchasing organizations. [Text] [Moscow ARGUMENTY i FAKTY No 52, 23-29 Dec 86 p 8] 13005

CSO: 1800/179

## MILITARY SUPPORT

### HELICOPTER CREW DROPPING RETARDANT ON REACTOR

Moscow ZNAMENOSSETS in Russian No 6, Jun 86 p 19

[Article by ZNAMENOSSETS correspondent, Colonel V. Chernikov: "Over the Damaged Reactor"]

[Text] In the morning of Sunday, 27 April, motors began roaring above Pripyat, the city of power workers. Several rotorcraft landed on the green turf in the stadium. The crews were met by Major-General of Aviation N. Antoshkin.

The mission that was assigned to the helicopter crews was an extremely important one. They had to cover up the damaged reactor by dropping materials from the sky.

The major-general carefully studied the aviators' faces. There were no signs of confusion or excitement on them. It was as though they were discussing a routine bombing exercise at the practice range.

Locating from the air the best approach to the damaged fourth unit among the crowded accumulation of production buildings, located close to which was a tall chimney, and selecting the work areas for loading the sacks -- in a word, blazing a trail for other aviators -- was a mission that the command element entrusted to Guards Colonel A. Serebryakov's crew.

Aleksandr Ivanovich had spent more than 2500 hours in the air. In recognition of his valor and bravery in the skies of Afghanistan, the Communist Party member had been awarded the Order of the Red Banner.

The right-hand pilot's seat was deservedly occupied by squadron navigator, Guards Major S. Nikitin, secretary of the subdivision's party organization. The flight technician was Communist Party member, Guards Senior Warrant Officer A. Vyshkovskiy, certified combat expert.

After flying around the "zone," Serebryakov chose the city square as the loading point. It was close to the sandy bank of the Pripyat River, and it was also a stone's throw to the nuclear power station -- about a thousand meters. Consequently, the time required to deliver the sacks filled with river sand to the helicopters and to transport the cargo to be dropped on top of the damaged reactor would be minimal.

Hovering over the square, the helicopter lightly touched the asphalt. Nearby on the lawn there were hills of the sand-filled "bombs."

The blades of the propeller were still whistling through the air when Vyshkovskiy grabbed onto one of the bigger sacks and began dragging it to the cargo compartment. Every minute counted. The commander and the navigator hurried to help. The aviators lifted the cargo and stuck it like a humpbacked threshold in the doorway. A second sack was placed on top of the first one, and then a third was added. A stack of sandbags grew in the doorway. In this form it was rather easy to push them out: all it would take was a push or the use of a lever.

Serebryakov lifted the helicopter smoothly into the sky. His altitude was 100 meters, then 200. The deserted streets of the settlement were left behind.

Through the window Vyshkovskiy saw the high openwork chimney with crosswise stripes. Next to the site of the fire, a thin column of blue-gray smoke was streaming upward. Obeying Serebryakov's hand, the helicopter began slowing down in its approach.

"I see the target!", Nikitin reported, as he used to do at the practice range.

For the senior warrant officer that served as a signal that it was time to open the door.

"Get ready!", the navigator warned, leaning close to the optical instrument.

The only thought that was troubling Nikitin was that he didn't want to make a mistake. Then the bombsight, having passed through the maze of twisted armatures, stopped on the red-hot center of the reactor.

"Drop!", Nikitin commanded decisively.

Using a board as a lever, the senior warrant officer sent the cargo crashing down into the middle of the reactor. It took only about 7 seconds for everything to fall, but it seemed as though time had stopped. Finally, the cluster of sandbags exploded into a whitish circle...

"It's a hit!", the navigator reported jubilantly.

"It's a hit!", Vyshkovskiy, who had been looking through the open door, confirmed.

Serebryakov took the helicopter out of the hovering mode and put it into horizontal flight, freeing the space over the fourth unit.

Then a precise strike was made by the helicopter crew consisting of officers Yu. Yakovlev, V. Balakhonov, and S. Telegin. The air attack against the crater continued.

During the first 24-hour period of operations, the most difficult period, the helicopter crews under Serebryakov and Yakovlev made 22 sorties each to bomb the reactor, dropping a total of 60 tons of protective materials. They were given sniper support by the crews of L. Vaytko, K. Dubinin, I. Pogorzhal'skiy, and other officers, which dumped onto the crater dozens of tons of sand, saltpeter, dolomite, and lead.

A role of no small importance was also played by the "rear-area support group" that rushed up to the pilots. That group was consisted of armaments specialist, Guards Warrant Officer M. Kotyuk, guards sergeants S. Pirumyan and A. Besimbayev, and guards private first class S. Kuchmas. At the work areas the fighting men carried the heavy sacks to the helicopters, prepared them for suspension, and packed the lead ingots.

...Evening crept up unnoticed. Darkness concealed the target. It was only now that Anatoliy Vyshkovskiy felt tired. His overworked hands ached -- during the day they had had to lift and move many tons of cargo. But there was no time to relax. The chemists had delivered a special liquid, and the crews had begun to decontaminate the equipment.

Experienced specialists in the air maintenance service, Guards Lieutenant Colonel N. Gavshin and Guards Captain Yu. Kolychev helped the flight technician to carry out the postflight preparation.

True, Vyshkovskiy had plenty of knowledge and practical skills. The senior warrant officer had had a long love affair with the sky.

He had been captivated by the "wide blue yonder" during his period of enlistment in the assault troops. His first love proved to be a strong one. It led Anatoliy to a school for aviator warrant officers. After receiving the specialty of air mechanic specializing in helicopters and engines, three years later he passed his external examinations and was admitted to a military air maintenance school.

Guards Senior Warrant Officer Vyshkovskiy has been flying helicopters for nine years. He also flew in Afghanistan. The best flight technician in the squadron, he has maintained his proficiency status as "expert" from year to year.

In response to my question "What character trait is especially important in a flight technician?", the crew commander answered laconically: "Reliability!"

I am convinced that this quality of the Soviet citizen is the key to understanding the sources of the heroism and bravery that were demonstrated by the aviators in the sky above Chernobyl.

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CSO: 1800/175

## MILITARY SUPPORT

### FIREFIGHTERS HONORED

Moscow POZHARNOYE DELO in Russian No 6, Jun 86 pp 24-25

[Article by V. Rubtsov, deputy chief of the USSR MVD Fire Prevention Main Administration, and our correspondent Yu. Nazarov: "Men of the Assault Echelon"]

[Text] On the night of 25 April on duty in the firefighting unit protecting the Chernobyl AES was the watch of Vladimir Pravik, and in the part of the city of Pripyat closest to the power station, that of Viktor Kibenok. An explosion thundered out at 0123 hours, and the firemen drove out at once at the sound of the alarm. What Pravik and Kibenok and their combat comrades did in the next 2 hours may be recounted briefly. But the greatness of their hearts and highest nobility and courage go far beyond the temporal and events framework.

...While still on the way they saw the crimson reflected light above the huge cube of the reactor unit and the fire in the roof of the engine room. Pieces of twisted metal and fragments of concrete and graphite were strewn about the ground.

In the most serious situation the 23-year-old Lt Vladimir Pravik showed himself to be a mature commander. While still en route he had conveyed by radio the higher-than-usual dimensions of the call. At 0128 hours his watch began operational deployment. Vladimir Pravik--the first leader of the extinguishing operation--sized up the dimensions of the impending disaster at once. He understood that the main thing was at any price to bar the fire's way on the roof of the engine room and protect the reactor, the third, neighboring the damaged one. Consequently, the extinguishing operation had to be started as quickly as possible. Pravik gave swift and precise commands. Getting one's bearings was difficult: the smoke from the conflagration was thickening the darkness of the night. But every man knew the facility well and had taken part repeatedly in exercises here also, at the fourth unit. Viktor Birkun was already connecting the line of hose to the pipe on the reactor wall. The fixed firefighting monitor was already in operation, and Ivan Shavrey was beating back the flames from the supporting structures.

The firefighters arrived from Pripyat at 0135 hours. The whole burden of responsibility was now being shared between Vladimir Pravik and Viktor Kibenok--watch chiefs of neighboring units, wards of the Cherkassy Firefighting-Technical School, friends in life and associates in work. They understood one another at once.

At the head of the GDZS group Kibenok conducted reconnaissance. The height from the lower to the upper checkpoints of the reactor unit is 71.5 meters, and at its eight levels and also in the engine room there were numerous centers of conflagration. They--Pravik and Kibenok--decided together what forces needed to be thrown into putting out these focal points and which needed to be concentrated in the main area--on the roof of the engine room. The men ran the lines of hose from the tank trucks positioned at the hydrants and connected them to the pipes, and the hose operators took up their planned positions. With virtuoso accuracy Nikolay Vashchuk installed the retractable ladder between the third and fourth power units and immediately rushed up its steps, running yet another line of hose to the roof of the engine room.

At 0142 hours there was the sharp braking at the damaged reactor of a "gazik". Maj L. Telyatnikov, chief of the AES firefighting unit, had arrived. On leave, he had been quietly asleep in his apartment in the city of Pripyat. A telephone call from the unit banished his dreams in an instant. He summoned a car and conveyed en route the command to the traffic control officer for the mustering of all personnel not on duty.

An experienced specialist, Leonid Telyatnikov, like his young predecessors in the role of leaders of the extinguishing operation, understood full well what the conflagration in the unit threatened and how great was the danger of the fire spreading inside the engine room and through the cable tunnel to the power unit neighboring the damaged unit. He was now responsible for everything and had to distribute his forces such as to hold out until reinforcements arrived, preventing a catastrophic development of events. He found time to be everywhere and himself or via his runner, Andrey Polovinkin, led the work in all areas.

He established contact with the administration and the duty personnel of the AES and together with them determined and implemented measures to close off the oil lines to the engine room and kept the situation under control in the cable tunnels. His energy and intrepidity were an inspiration to people.

Exceptional courage was also displayed by Aleksandr Yefimenko, chief of the firefighting unit of the city of Pripyat.

Later, evaluating the actions of the first watches, Telyatnikov would say: "The personnel worked selflessly and did not have to be urged or have a command repeated twice, understood right away and operated on the run."

It was difficult and dangerous everywhere, but most difficult and dangerous on the roof. There together with Viktor Kibenok and Vladimir Pravik the fire was extinguished by divisional commanders Vasiliy Ignatenko, Vasiliy Bulava and Ivan Butrimenko and the firemen Vladimir Tishura, Ivan Shavrey and his brother Leonid Shavrey, Nikolay Tytenok, Vladimir Prishchep and Aleksandr Petrovskiy. They had climbed there by the outside fire escapes and retractable ladder. They saw from the roof there below, like the mouth of a volcano, the shimmering damaged reactor. In front of them was a wall of fire and suffocating, stifling smoke. The molten polyurethane thermal container ran, metal structures glowed red hot, the roofing tiles caved in underfoot and boots became stuck in the burning bituminous mass. Death threatened from



all sides, but they struck and struck with jets of water at the avalanche of fire. And the fire retreated and abated. But another menacing source of danger--radiation--had not been extinguished....

...Kibenok saw that Tishura and Ignatenko were in a bad way and were losing consciousness and would at any moment slide down a cave-in on the roof. He attempted to bring them round and pull them to the fire escape, but sensed that he himself was losing strength. He managed to call for help. The comrades lowered them to the ground, where an ambulance was standing by....

There were 28 of those who had taken the first assault.

Firemen of the units which had joined the struggle who had not been on duty arrived from Pripyat at 0230 hours, and the Chernobyl professional firefighting unit took up operational positions shortly after.

The operational sector on the roof was headed by Grigoriy Leonenko, deputy chief of the AES militarized firefighting unit. Together with him was Petr Khmel, chief of the watch. Working with a hose on the roof, he did not know that his father, Grigoriy Khmel, as part of the Chernobyl Firefighting Unit, was engaged in operational deployment below, at the engine plant, and his brother, Ivan Khmel, chief of the Chernobyl State Fire Inspection, was engaged in preparing and kitting out new firefighting subunits, which would take the place of the second echelon.

Forty persons replaced the firemen of the first two watches. And they fought also, not sparing themselves.

The duty fire-extinguishing service of the Kiev Oblispolkom Internal Affairs Administration Fire Prevention Administration headed by Vasiliy Melnik, chief of the service and training department, arrived at 0330 hours. It included Nikolay Kupa, chief of a State Fire Inspection department, his deputy Anatoliy Bondarenko and Vasiliy Denisenko, chief of the Technical Standards Department. Vasiliy Melnik was in charge of the extinguishing operation at the final stage, and all members of his group worked actively. At 0450 hours the fire had been localized and at 0600 was extinguished.

Flying round the grounds of the AES by helicopter on 26 April and surveying it, the representative of the USSR MVD Main Administration for Fire Prevention, stated with complete assurance that the fire had been extinguished fully and surely. An analysis of the actions of the firefighting subunits showed that the fire-extinguishing leaders, from the watch chiefs who arrived first through the unit chiefs and the fire-prevention administration fire-extinguishing service, accurately evaluated the situation and adopted the sole correct decisions in the situation.

The men and commanders performed their duty completely. They did all they could, and what they did was tremendous according to the highest moral yardsticks. It would be simplest to say that they were guided by the heat of battle and that they did not conceive of exposing themselves personally to any danger. But this would be wrong and unjust. They consciously took a deadly risk because they knew there was no other solution. They behaved as prompted by their reason and conscience.

One of them would say (word illegible): "I saw the radiation," (word illegible) of red-hot graphite (word illegible) a sinister image. And Ivan (name illegible) would subsequently write (words illegible): "Each of us understood what he was getting into." Today this is understood by all who seriously (word illegible) the tragedy which occurred at the Chernobyl AES. At a press conference for Soviet and foreign journalists A. Vorobyev, corresponding member of the USSR Academy of Medical Sciences, was asked which of the professional groups found themselves in the worst situation as a result of the accident. "The firefighter group suffered the most," A. Vorobyev answered. "These people," he said, "knew the kind of fire they were fighting and knew that it was not the fire that threatened them but radiation. They quelled it. And they extinguished it. In these moments they saved, if you will, our lives."

Yes, an understanding of the dimensions of the disaster which threatened fed their energy and resolve. They gambled with their lives in order that the accident not grow into a catastrophe and that disaster escape many people--near ones and dear ones, acquaintances and strangers. They could not have done otherwise.

Viktor Kibenok came from a family of firemen. His grandfather, Kuzma Arkhipovich, worked in the firefighting unit in Chernobyl for 33 years, and his father, Nikolay Kuzmich, was for many years in charge of the State Fire Inspection of Ivankovskiy Rayon--one of the rayons to which many families were evacuated from the AES zone. And now, retiring, Nikolay Kuzmich continues to work on the rayon volunteer firefighting society council. His mother, Irina Iosifovna, also works in fire prevention. Thus the tradition of fidelity to one's professional duty is a family tradition among the Kibenoks. Viktor Kibenok was elected secretary of the unit Komsomol organization. And this was also recognition of his human attributes--sociability, sensitivity and kindness. This spring Tanya, his wife, told him that she was expecting, and this was their common great joy.

There are good labor traditions in Vladimir Pravik's family also. His father, Pavel Afanasyevich, is a mechanic, his mother, Natalya Ivanovna, a nurse. They were able to foster in their son a love of work. A daughter was born to him this year, in April. Together with his wife Nadya, a music teacher in a kindergarten, they decided to name her in honor of his grandmother Natasha.

Vasiliy Ignatenko served in Moscow fire prevention, and served well. He was a member of the unit Komsomol committee and a member of the Komsomol bureau. He took part in firefighting sports and had an official rating. He had won respect in the Pripyat firefighting unit not only as a sound professional but also jack of all trades. He was a joiner, carpenter and electrician, and he cooked dinner such as to earn the praises of his wife Lusya even, although she herself is an expert here. When he visited his mother, Tatyana Petrovna--she lives in the country--he also found time to mend the roof and replace the wiring.

And Nikolay Tytenok's hobby was wood carving. The unit's Lenin Room was outstandingly arranged. And he had many interesting works at home. A person of refined artistic taste, he valued strong-willed qualities highly also. Naval service in Kronshtadt had taught him to value friendship and to respect the bold and nondespairing.

Vladimir Tishura and Nikolay Vashchuk were his friends. Confirmed movie buffs, they would, when together, enthusiastically discuss what they had read, argue and share their news.

Listening to the stories about these young firemen and thinking about them, it is impossible not to note this combination of strong-willed qualities and spirituality, love of work and thirst for knowledge. The motto: all for one and one for all was not for them a high-sounding phrase but a moral principle and guide in life. They did not betray it even at the most dreadful hour.

Many of the firefighters of the first two watches were, together with other casualties, taken to Moscow clinics. And they kept up their spirits in the clinics also and conducted themselves with dignity and were strengthened by a consciousness of having done their duty. The doctors did and are doing everything possible to preserve their life and restore them to health. But it was not possible to save the lives of Nikolay Vashchuk, Vasiliy Ignatenko, Viktor Kibenok, Vladimir Pravik, Vladimir Tishura and Nikolay Tytenok.

The grief of near ones and dear ones is beyond measure and is causing deep pain in the heart of each individual. And alongside this great exploit, alongside this unquenchable sorrow so miserable, vile and blasphemous appear the attempts of certain disgraceful politicians to use the accident in Chernobyl to incite anti-Soviet hysteria. There is nothing more immoral than profiteering from human sorrow.

We have told merely of the firemen who were face to face with the elements in the most terrifying first hours, by whose efforts it was possible under the grimmest conditions to put out the conflagration and protect the other power units from the fire. Work continues at the Chernobyl AES and on the adjacent territory to have done with the consequences of the accident.

Speaking on Soviet television, M.S. Gorbachev said: "A cruel test has been passed and is being passed by all--firemen, transport workers, construction workers, medical men, special chemical protection units, helicopter pilots and other subunits of the Ministry of Defense and MVD."

They are tackling new tasks and overcoming other difficulties. They are sure of success because they are working conscientiously and because they are supported by the whole country.

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## MILITARY SUPPORT

### SPECIAL REPORT ON FIRE

Moscow POZHARNOYE DELO in Russian No 7, Jul 86 pp 4-8

[Special correspondent B. Rudenko report: "Continuation of the Exploit"]

[Text] Kiev-Ivankov-Chernobyl--The years will go by, and much of what happened at the Chernobyl AES will most likely appear differently than now. Time--the dispassionate arbiter--will make the final assessments. And just one thing will remain unchanged. An event which went on continuously, hourly, day and night. Its name is: The Exploit. Our remembrance of it will always be as shining and fresh as of those who accomplished it.

Today the whole country knows the names of the first firefighter heroes. Those who halted the disaster and put out the conflagration of the fourth unit.

Vashchuk, Ignatenko, Kibenok, Pravik, Tishura, Tytenok. These names, repeated many times over by newspaper paragraphs, will be recast in metal for their eternal remembrance.

This important victory was won at a high price. Firefighters from the subunits which took part in the extinguishing operation were hospitalized with varying degrees of radiation damage. Their comrades came to replace them.

The first, most difficult night was over. V. Gurin, deputy chief of the Ukrainian SSR MVD Fire Prevention Administration, had assumed leadership of the firefighter subunits assembled at the scene of the accident. Patrols of the AES grounds for the contingency of the outbreak of a new conflagration and radiac monitoring were organized. A firefighter field camp was quickly set up. A day later Gurin was replaced by another deputy chief of the republic Fire Protection Administration--S. Gripas. Those days the leaders of the combined detachment of firefighters were replaced often: in the most dangerous sectors the commanders and communists were in the van....

The government commission for removal of the consequences of the accident began work. There was much in the situation that had yet to be elucidated completely, but the preparations for the offensive against the damaged reactor were already under way, and the firefighters had been assigned one of the main roles therein. Time and again they worked up and put the finishing touches to different versions of the assault.

A battle was being fought with a terrible enemy. And as in any real battle, there were here forward positions, a rear and headquarters and attacks and regroupings of forces. One thing was lacking: a chance to ease up if only for a minute.

#### Headquarters

The headquarters of the UkSSR MVD Fire Prevention Administration were set up in the very first hours of the accident, on 26 April. Since that time it has operated continuously, around the clock. A multitude of tasks, which are set by the ever-changing situation, is being tackled here.

Following the elimination of the conflagration of the fourth reactor it was necessary to rapidly assemble the reserves of people and equipment. To replace those which had been put out of action came subunits of Kiev, Nikolayev, Rovno, and Simferopol and Kiev and Chernigov oblasts. Combined detachments of Zhitomir and Kharkov were formed at the same time. A logistics support rear service, an equipment field repair base and medical services for the personnel of the firefighting subunits were organized.

A mass of seemingly simple questions--supply, meals, recreation--rained down all at once.

In the office of F. Desyatnikov, chief of the republic MVD Fire Prevention Administration, the walls are covered with maps and diagrams. They say little to the uninitiated view, but it is they which are now the focal point of what is happening. Chernobyl is the forward edge, and the firefighting service, as in the first hours, remains at the forefront of the struggle. But, in addition, it was necessary to protect against fire the empty facilities and depopulated inhabited localities of the 30-km evacuation zone and provide fire protection for the mustering points of the evacuated population.

A dispatch came in from Chernobyl at night: several thousand meters of fire hose were needed to pump out the water. The question of the transfer was settled in a matter of minutes. By morning the hoses had been supplied.

Diagrams, maps, the continuous ringing of the telephone and ashen faces swollen with fatigue. Such is the headquarters. Information concerning material losses, reserves, exploits and new assignments is received here. Applications and reports of volunteers arrive here in an endless stream: "...please use me in work on eliminating the accident at the Chernobyl AES...." There is a multitude of such applications. They come not only from the Ukraine. In Moscow, Rostov and Krasnodar and many other cities hundreds of fire prevention employees are requesting and demanding that they be sent to help their comrades.

#### The Rear

The small rayon center of Ivankov. From here to the boundary of the danger zone it is 30 km. Rear services and supplies are located and a reserve detachment ready to replace that working directly on ending the accident is stationed here. The name "rear" is, strictly speaking, conditional. Those working here have to be in the zone often. To deliver to Chernobyl hot meals,

whose preparation has been organized in a dining hall of the community, and drive in or take out equipment. For this reason their form of clothing is the same as for those currently in Chernobyl. Cotton clothes, caps and respirators. Only the respirators are not worn here. They are for trips to the zone. Life is already being lived normally in the community, and the strain of what is happening is felt only in the rear headquarters (there is a headquarters here also).

Damaged firefighting equipment is dispatched to Ivankov. The rayon agrarian-industrial association has specially set aside for its repair a shop with all the necessary equipment. Work on rehabilitating the fire engines is being carried out by a team of the Kiev Fire Prevention Administration engineering service detachment.

Learning that we were driving to Chernobyl, V. Kuchinskiy, deputy commander for political affairs of the firefighting unit from Fastov, asked us to take fresh newspapers for the boys. Many of those evacuated from the zone are now living in Ivankov, and therefore I asked Kuchinskiy what people's mood was. He replied that people saw that they had been helped and that we were working here constantly alongside them and together with them. They firmly believe that it will be possible to cope with the disaster.

The areas where the evacuees have been accommodated is a rear area also. The density of the population there has increased: where two people lived, six are now living; the fire danger of the residential sector has increased. Seven mobile inspector groups have been set up to carry out fire-prevention measures in these areas. In agitation automobiles of the volunteer firefighting society they patrol the territory, perform mass-explanatory work, organize discussions with the population and show fire-fighting films and inspect enterprises, apartment houses and farmbuildings. Instances are encountered at times of an underestimation of the seriousness of the situation, and the appropriate measures have to be implemented. However, this is not often. Everything necessary is done in good time. The fire-prevention patrols are monitoring the situation.

## Chernobyl

Kievans say that the most beautiful parts of the oblast are there. The surrounding foliage is astounding and luxuriant. The highway is like a corridor through cheerful greenery.

On the roadside are the placards: "No Entry. Danger Zone". From here to the AES is exactly 30 km. There is a pass inspection at the road barrier. On the other side of the highway is a radiation supervisor station, which carefully inspects each vehicle leaving the zone: radioactive dust cannot be allowed to be carried by the wheels beyond this territory.

Here, at the boundary of the zone, the radiation is negligible, but as one approaches the station, it will increase. Radioactive dust is its principal source, and for this reason the respirator is now an inalienable component of the equipment of everyone in the open air.

The fire-fighting service detachment participating in ending the accident (as it is officially called) is housed in the fire unit building several kilometers from the AES. There is a radiation supervisor station before the entrance to the grounds of the detachment also. There are many such stations in the zone. This one's mission is keeping a strict account of the condition of the people and equipment returning from an assignment.

The composition of the detachment is variable. People--from the leader through the ordinary worker--change every 10 days. Sometimes the change occurs earlier: the time spent here is determined by the results of radiac and medical inspection. The summary dose of radiation obtained must not exceed the determined medical limit.

There are permanently in the corridor of the unit several large vessels with drinking water and kvass. The doctors recommend the somewhat greater consumption of liquids. This is one prophylactic measure, like the daily intake of iodine tablets. There are always many people here, but no bustle. It has its own entirely special rhythm of life--thrifty and economical. There is a self-possession in the faces, gestures and terse, concise sentences. Everyone knows what he has to do. Strength must be preserved.

People are assembled here from all parts of the Ukraine--Kiev, Chernigov, Zhitomir, Vinnitsa, Rovno. Shifts leave for the station on operational assignments every 6 hours, and on each occasion a personnel carrier with radiation supervisors which had been specially assigned the unit allotment sets off ahead for the AES. During the accident the explosion flung pieces of graphite from the reactor. A surprise spurt of radiation may be expected every dozen meters. For this reason the radiation supervisors are drawing up maps of the terrain and constantly monitoring the radiation situation. There must be no undue risk.

#### Everyday Life

Loudspeaker announcement: "Vladimir Grigoryevich Kravchuk, drive of Firefighting Unit 52 of Zhitomir Oblast, is 50 years old today. By order of the UkSSR minister of internal affairs Comrade Kravchuk has been awarded for exemplary service a valuable gift. Today he is setting off for his operational assignment. We congratulate you, Vladimir Grigoryevich! We wish you health and success!"

Senior Inspector V. Zadvornyy (UkSSR MVD Fire Prevention Administration): The command post. All identically clothed. Coats, headgear, respirators at half-face, who is commander and who subordinate cannot be made out right away. Leader of our detachment--Colonel Chernenko--speaks softly, his voice gives him away. People sometimes do not even have time to become acquainted with one another, but the main thing is that they understand their mission instantly. Coordination--as if they had been working together for 100 years....

Combined detachment order: "...for successful accomplishment of operational assignment the payment of a bonus to... I.S. Yatsenko, drive of Militarized Firefighting Unit 25 of the Kiev Fire Prevention Administration, T.T. Vinogradnik, inspector of Independent Militarized Firefighting Unit 1 of the Ivano-Frankovsk

Fire Prevention Department, V.O. Kubrak, senior fireman of Militarized Firefighting Unit 11 for protection of the Chernigov 'Khimvolokno' Production Association...."

Simply news items. Water is needed to begin the concreting of the base of the damaged reactor. Hundreds of vehicles with cement are moving along the Ivankov--Chernobyl highway. There was no operation more important than the concreting at that time. A great deal of water was needed, and it had to arrive continuously, otherwise the concrete would choke the supply lines, and all would be to no avail. D. Shchipets' shift from the UkSSR MVD Fire Prevention Administration installed firefighting pumping plants at the edge of the AES industrial water tank and ran lines of hose to the fourth reactor. The water was supplied. At night a filter from one of the pumping plants burst. Alongside was a backup plant, it is true, but a most dangerous moment! Time was needed in order to switch the supply to the backup pump, but it was just this which was lacking.

I. Yakubovich, senior driver of the independent militarized firefighting unit (number illegible) of Zhdanov (word illegible) before everyone--he removed the fault. How? He simply knew precisely what was needed to remove such faults. Experience.

A few hours later the radiation level near the pumping plants rose sharply, and there was a change in wind direction. It was impossible to stay, it was impossible to leave. Two watch chiefs, two lieutenants--S. (name illegible) and A. Bidyuk--went to their comrades' assistance. They covered them (word illegible), knocking back the radioactive dust with a screen of water.

From a conversation with V. (name obscured) (Kiev Fire Prevention Administration):

"But what if someone flinches, takes fright? It happens. What do you do then?"

"It happened once. What do we do? Precisely nothing. On that occasion reproach neither by word or look. But everyone understood. Weakness had been shown. Not cowardice, perhaps, but simply weakness. He was simply sent home. But everyone around now knows from where and why he was sent. And they will hardly forget. Is there a stronger punishment?"

#### The Communists

The meeting was held on 9 May. The first meeting of the nonestablished party organization of the Chernobyl firefighting service. Some 33 communists on the provisional register. It was brief, this meeting. The first question was such: the communists' vanguard role in eliminating the consequences of the accident. And the second question examined the application of Vasiliy Grigoryevich Levochkin, senior engineer of the UkSSR MVD Fire Prevention Administration, for acceptance as a candidate of the Communist Party. He wrote in the application: "In connection with the fact that I am going to perform a responsible assignment I request acceptance as a candidate of the Ukrainian CP. I will justify the comrades' trust."



On what mission Levochkin was to go half an hour later everyone already knew. Together with his comrades he was to secure the operation of the same pumping plants which had pumped water for the concreting of the base of the reactor. It is difficult in the zone to divide assignments into more or less dangerous--every step could be dangerous. But there was no more important task for that day.

The meeting resolved unanimously to petition the republic Fire Prevention Administration party organization for Levochkin's acceptance as party candidate.

And his colleague and comrade, V. Zadvornyy, was elected first secretary of the new party organization.

"People began to approach me almost immediately following the meeting," Viktor Ivanovich said. "They asked to be sent to the most dangerous sector. Since I am a communist, they would say, I should be in front. And the forward edge for us here is everywhere. S. Bogatyrenko, engineer of the Political Literature Publishers from Donetsk, handed me an official report sheet: 'Considering that from my army service I am well acquainted with the specifics of decontamination work, I ask to be assigned the most crucial sector.'

"We organized the issue of operational news sheets. Tolya Gelikh takes good photographs, and it was he who organized the photo news from the forward edge. He would not part with his camera, although the camera had to be left here for it had been too long in the increased radiation zone....

"What is people's mood? If you visit the hostel, pay attention: on one of the doors is the notice: 'Room occupied through 20 May. Please do not disturb.' This was written by the boys who had come here on Victory Day. What I want to say is that if there is time and a desire to joke, consequently, the mood is normal."

And Levochkin performed, of course, his operational assignment.

V. Zatoka, a driver of the Fire Prevention Department from Cherkassy, is keeping watch at a pumping plant in the increased radiation zone.

"How did I end up here? The unit leadership announced to us drivers that four men were needed for work on putting an end to the accident in Chernobyl. Decide who will go. What was there to decide? Someone has to go. But I am a communist...."

#### The Exploit

The helicopters "carouseled" around the reactor, dropping tons and tons of lead, sand and clay. The radiation was gradually falling, but a new menacing danger had arisen. No one could predict how the red-hot core of the reactor weighed down by the thousands of tons of the anti-radiation shield which was being created would behave. The specialists understood that the most important thing now was reinforcing the foundations of the damaged unit.

However, radioactive water had accumulated in the footage beneath the reactor. It was first of all necessary to pump it out into a special reservoir and then open the valves and release the water from the damaged coolant circuit. There could be no delay, literally at any moment the situation could become critical....

In the wake of their comrades who had been first to meet up with the disaster the firemen had to accomplish one further exploit.

It is impossible to list all those to whose courage, forbearance, willpower and professionalism we are obliged. There are too many of them for one magazine article. Scientists, AES workers, soldiers, construction workers, transport workers, doctors. Extolling the services of people of one profession over others would be unforgivable and impermissible tactlessness. Honor and gratitude are equally due them all. But we have to mention the names of those who went on ahead, meeting the deadly danger face to face. Those who endured and conquered and who for the second time in these difficult days of courage and steadfastness, anxiety and sorrow ward off the threat looming over people.

Here are their names: Petr Zborovskiy, captain in the Soviet Army, Maj Georgiy Nagayevskiy, Warrant Officer Mikhail Dyachenko, first sergeants Petr Voytsekhovskiy and Nikolay Pavlenko and Jr Sgt Sergey Bovt, fire prevention workers of the city of Belaya Tserkov; the Kievan firemen Maj Yuriy Gets, sergeants Ivan Khudoley, Vladimir Trinos, Aleksandr Nemirovskiy and Anatoliy Dobrin; Sgt Viktor Khadzhayev from Cherkassy and Jr Sgt Igor Ishchuk from Lutsk. They all knew full well where they were going when they stepped forward at the command: "Volunteers, one pace forward!" and, strangers to one another, they became friends--that special friendship which is born in battle....

The plan of the impending operation had been drawn up in detail in the few hours which the situation permitted. Nagayevskiy and Dyachenko went to the fourth unit by the inner passageways of the AES to open the gates, to which Voytsekhovskiy and Khudoley would drive the pumping plant and hose runners on the dot. Then the vehicles would enter the premises beneath the reactor....

This was where the "hottest" territory was. Fragments of radioactive graphite were scattered on the ground particularly densely. The way for all was paved by Captain Zborovskiy. Those following would do their duty under any conditions. He knew this, but their lives depended on him. Carrying the radioactivity counter, Zborovskiy covered all these meters literally groping his way forward, learning each sector by heart. There the path for the vehicles. This is the way people would come. This was how he led, issuing clear, staccato commands: keep to the left here, go around here, here on the run, faster, here we can catch our breath for 20 seconds....

In one spot the path ran along the front of the shock wave of the recent explosion. Fragments of a chair were scattered there in the passageway, and here lay a polyethylene container with instruments, entirely new and untouched, but as if torn open by the jerk of a strong hand.

The water shone oleagiously in the beams of the hand lamps. They had reached it. It was now a matter of the skill of the firemen. It took exactly 7 minutes to deploy the pumping plant and fill the three fire hoses with water. Yet just recently, in a training drill, it had taken 20....

They left the danger zone at once. The pump was switched on. But every 4 hours the engine had to be refueled. Replacing one another, they went again and again beneath the reactor along the passageways full of silence and invisible death. The lamps ran down somehow quickly--this was what was remembered also.

The engine stopped twice--and they were not to blame. The second time it broke down completely. Pavlenko and Bovt drove up the second vehicle and pushed the faulty one ahead with a blow of the bumper. The pumping continued.

The following line appeared in one newspaper article in connection with these events: "hundreds of fire engines pumped out the radioactive water." Telling and impressive, but untrue. There were not hundreds of vehicles, there were just two operating by turns for almost 48 hours, and there was people's courage and steadfastness, which determined the outcome of the engagement.

At 2 in the morning on 8 May Major Gets reported: the water level has dropped, the valves are within reach, they can be opened, we just need boots and rubber gloves (words illegible)....

They were all immediately taken for examination to the Ivankov hospital. And when it was announced on local radio that the water had been pumped out from beneath the reactor and that all was in order, tens and hundreds of people called at the hospital to thank the heroes, look at them and shake their hand. There were many evacuees from Pripyat and Chernobyl in Ivankov, and who if not they would understand the significance of what had been accomplished.

Flowers were thrown onto the vehicle on which the participants in the operation were taken from Ivankov home.

They are now all back at work in their subunits. And recently in Belaya Tserkov Bovt, Voytsekhovskiy, Dyachenko and Pavlenko were at a meeting of the party organization unanimously accepted as Communist Party candidates.

#### Everyday Life

Extracts from situation reports: ...Personnel of the Chernigov combined detachment from the zone of deployment withdrawn. Zhitomir combined detachment numbering 144 men with 41 pieces of equipment moved up to replace them.

...Pumping of water which had penetrated power unit's cable tunnels completed. During performance of the operational assignment V. Loboda (Militarized Firefighting Unit 10 of Kremenchug), S. Voyko (Militarized Firefighting Unit 6 of [word illegible]) and radiation supervisor V. Fedorov (Independent Militarized Firefighting Unit 1 of Lvov) distinguished themselves.

...Work performed with the help of water glass and special foam on decontamination of the building of the main block of the AES. Eight thousand square meters covered.

...Decontamination of children's establishments and apartment houses of Chernobyl began.....

### Not Yet the Epilogue

Red (word illegible) with white side strips, beating down the dust with jets of water, move slowly in front of the AES blocks. This also is daily work. Hundreds of people are working at the station now. Together with them at the forward edge the firemen are on the offensive. Victory is near. It is not far off....

The well-known poet Lev Oshanin, winner of the USSR State Prize, addresses not for the first time the theme of firefighters' courage. Readers are well acquainted with his poem "Facets of Fire" and verses and songs about the heroism of the men of the fire front. The poet read his new ballad for the first time on Central Television in a program devoted to the firemen who took part in ending the accident at the Chernobyl AES.

### Ballad of Chernobyl

To the men of the firefighting subunits of Chernobyl and Pripyat who were the first on the scene

You sprang from the heart willy-nilly  
At the demand of the human conscience.  
A ballad of death and a ballad of pain,  
A ballad of pure manly loyalty.  
Hardly was the Chernobyl disaster in the air  
Hardly had the troubleshooter fallen lifeless  
First here was chief of the watch  
Vladimir Pravik with his men.  
I look at his face--about to straighten  
This wrinkle between heavy brows--  
An enviable lad, Volodya Pravik,  
In his unique youth.  
...We must drive back the flame! Chop off the flame!  
He knew he would not be long alone  
And five minutes later there alongside,  
Like the swift of spring, was Viktor Kibenok.  
His hands had not disaccustomed themselves  
To the greenery-redolent handle bars--  
He had just sped here by motorbike,  
The earth foamed seething white.  
And Tanino a face in a garland of cherry trees....  
But here, so many meters from the ground,  
Beneath them fiery heaved the roof  
Unseeing and unhearing death  
They managed simply what they could.

How astounding is men's character  
When it attains the height,  
When the nuclear reactor opened wide  
And the misfortune must be handled by you.  
What could happen next, they both understood,  
But another reactor was not far away--  
So necessary to prevent the spread of fire  
To the neighboring unit.  
And they fought back the flames. But  
Screwing up his eyes, Viktor could see,  
While burning himself, how, suddenly sinking,  
Sergeant Tishura ran his hand through his burning hair.  
With the ebullition of the cherry trees,  
Which the heart requested,  
Now forever the thread broken off....  
Saving the reactor was not in their power,  
They had the right to retreat.

...We carry the Panfilovers in our memory,  
And once again, although the war all-clear  
Has long since sounded,  
There were of them, the very first, also 28,  
Those who flung themselves into battle  
Without a moment's reflection.  
And if in the lonely nighttime  
The boys had not their duty done,  
All would have been triply irremediable,  
And you, perhaps, would lifeless be.  
Their death was the rungs of the Victory--  
There, at the pinnacle, they shine.  
And thousands of others rushed thereafter,  
To return to the Earth living days.

This night's events might not have been!  
How many lives and efforts given  
Because someone earlier had been in error  
Because someone had in some haste been...  
Chernobyl--only a tiny landmark  
Of the disaster growing in mankind.  
Chernobyl--echo of the nuclear age  
And, perhaps, the coming sign.  
A quiet outburst, but what disaster...  
And what, like a bomb from the gloomy heights,  
Inhuman passions indulging,  
Will be borne away to the nonexistence of the half-world?

Not expecting splendid volumes,  
The motherland winds flowers into a garland  
To you, boys, hero-lieutenants,  
Vladimir Pravik and Viktor Kibenok.  
No oblivion in the people for heroes of the past,  
Dismissing all that is petty and bad,  
Although the third generation has taken its place,  
Once again is youth in the line of fire!

## Life--For Friends

A letter has been received from Great Britain with an expression of sincere admiration for the firefighter heroes of Chernobyl. The signature is that of E. (Giring).

No man deserves greater love than he who has given his life for his friends, the writer of the letter asserts.

## Solidarity of Italy's Firemen

The Soviet Embassy in Italy has received a letter from Rome's firemen. Expressing profound sympathy with the Soviet people in connection with the tragedy which has befallen them at the Chernobyl AES, Rome's firefighters emphasize that the selflessness and self-sacrifice shown by the workers of the Soviet Union's fire prevention service are the attributes which unite the firemen of the USSR, Italy and the whole world. The letter goes on to say:

"It is precisely the use of nuclear power for military purposes which induces serious reflection on the safety of the planet. This prompts Italian workers to support peace and disarmament with even greater resolve and to struggle with renewed vigor for disarmament.

"Any military conflict, even a limited one, would lead to far more serious consequences than the accident at the Chernobyl AES. Therefore we are acting and will continue to act in the interests of peace, counting on international solidarity and support and advocating not only the settlement of the military conflicts which exist in the world but also opposing fanaticism and repression, which nurture terrorism and which not only do not correspond to the spirit of peaceful coexistence but are directly contrary to it.

"Confirming the reports of the news media, M.S. Gorbachev, general secretary of the CPSU Central Committee, emphasized the decisive role which the firefighters performed in preventing even more serious consequences of the accident. They suffered severely as a consequence of the long time spent under the conditions of increased radiation.

"To all those who lost what man holds most dear--life--and those who are suffering in hospital we express our gratitude and respect. They showed the high human qualities which bind all firefighters in the world.

"We ask that our fraternal greetings be conveyed to all firemen of the Soviet Union."

Firemen of Rome (PCI section of Rome's firemen, CGIL, CISL, UIL unions of Rome's firemen).

Rome, 26 May 1986.

## There Is No Other Person's Grief

These words of the poet come to mind when one thinks of the accident at the Chernobyl AES. For thousands and thousands of citizens of all the Soviet republics the grief and pain of Chernobyl are their grief, their pain.

Here is a letter from G.A. Zhakupova from Petropavlovsk in North Kazakhstan Oblast: "I feel how hard it is now for those close to the fallen heroes. In 1965 my husband, Kenzhebay Zhakupov, chief of the Kzyl-Orda Oblispolkom Internal Affairs Administration Fire Prevention Department, also died at a fire. Our son grew up without a father. A graduate of the Sverdlovsk Firefighting-Technical School, he will this year graduate from the Tashkent branch of the Higher Engineering Firefighting-Technical School. And I would like my Murat to be as brave and noble as his father and L. Telyatnikov, V. Pravik, V. Kibenok and all their combat comrades."

Unit chief N. Marenich, B. Gurin, secretary of a party organization, and I. Levchenko, secretary of a Komsomol organization, write from Dnepropetrovsk: "At the first call we will come to assist and lend a hand. Every day associates bring report sheets concerning their dispatch to Chernobyl."

And one further letter from Dnepropetrovsk. In it G. Sidorenko, deputy commander for political affairs of Militarized Firefighting Unit 13, gives the names of those who were the first to write a report sheet requesting that they be sent to the area of the Chernobyl AES. These were watch chief V. Pushkin, senior driver V. Pavlov, drivers A. Oniskovets and S. Vezhichanin, fireman O. Bunyayev and divisional commander M. Korzh. "Solidarity, feeling for human sorrow, disinterestedness--these qualities are fostered in Soviet people by the Communist Party," G. Sidorenko concludes his letter.

"The workforce of the maritime detachment of militarized fire prevention," our non-T/O correspondent A. Asaturyan writes from Baku, "petitions the Azerbaijan SSR MVD for the conferment on firefighting ship 'Vikhr-3' the name Viktor Kibenok, and on the ship 'Vikhr-5' that of Vladimir Pravik. Grateful remembrance of them will be eternal."

"We are proud of the exploit of these boys," A. Knyazev, chief of a watch of the Orenburg Independent Militarized Firefighting Unit, writes, "and grieve that they who strode into death for the sake of life will be no more in our ranks."

But life goes on. Work is unfolding in the area of the AES at a growing pace. Speaking of this, A. Koshcheyev, deputy commander of the Chelyabinsk Oblispolkom Internal Affairs Administration Fire Prevention Administration Independent Militarized Firefighting Unit 30, emphasizes: "Only in our society, where communist ideology and morality predominate, are people distinguished by such civicism and such comradeship, which at a difficult time for the motherland rally everyone in an indestructible monolith prepared to confront any trial."

This same thought is expressed by A. Pyanov, member of the USSR MVD Council of Veterans, in verse. "The heroes glory did not seek, at the price of their life they saved us," he writes.

V. Konovalov, secretary of the Kharkov Oblispolkom Internal Affairs Administration Fire Prevention Administration party organization, reports that the workforce of Independent Militarized Firefighting Unit 9 came out with an initiative for holding an unpaid work Saturday and transferring the money earned to account 904. The firemen of Militarized Firefighting Unit 29 decided to donate blood to those in hospital as a result of the accident.

In accordance with a decree of the UkSSR MVD Board and the Civil Servants Union Ukrainian Republic Committee Presidium, the workforce of the Kharkov Oblispolkom Internal Affairs Administration Fire Prevention Administration, as the winner of socialist competition per the results of work in 1985, was awarded the challenge pennant and a cash prize. At a meeting of the oblast's fire prevention workers' aktiv it was unanimously decided to transfer the cash prize to the fund for casualties at the Chernobyl AES.

A subunit was formed which left for Kiev Oblast for the scene of the accident. It included experienced specialists--the communists A. Tkachev, N. Kuleshov, V. Zyuban, N. Burda, N. Bugayenko, N. Vakulenko and V. Ganziy.

A letter from the firefighters of the ancient Russian city of Yelets, from militarized fire prevention of the Nizhniy Tagil Foundry, from the Militarized Fire Prevention Department of Krasnoyarsk, from independent militarized fire prevention of Krasnodar Kray.... A mass of letters, and in each both an echo of grief and pride in Soviet people living by the laws of courage. And in each a report of the resources--private or collectively earned--transferred to the fund for the elimination of the accident. And in each a protest against the nuclear arms race and ardent wishes for peace and clear skies for all people on Earth.

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## MILITARY SUPPORT

### ACTIVITIES OF ARMY UNIT DESCRIBED

Moscow VOYENNNYYE ZNANIYA in Russian No 8, Aug 86 pp 10-11

[Special Correspondent G. Bagdasarov report: "Scene of the Exploit--the AES"]

[Text] The accident at the Chernobyl AES left no one indifferent. It pierced Soviet people's hearts with deep pain, but the disaster did not break the people but brought them together even more. The whole country came to the nuclear power workers' assistance: there are power engineers, miners, metro construction workers and scientists here. Displaying fearlessness and self-sacrifice, civil defense men are doing their duty also. Our correspondent visited the accident area in May. Here is his account.

The road to the subunit had to be traveled in four stages. As if in a relay race, the drivers "handed" me over to one another. The stops took several hours, and for this reason I reached the camp after supper. I was immediately struck by the tended territory and the tents, reminiscent of a multitude of pyramids in strict formation. Opposite was the placard: "Soldiers! Successful Accomplishment of the Government Mission Is the Duty of Each of Us".

#### After the March

...Great efforts are going into combating the radioactive contamination of the terrain in a radius of 30 km. Its level is gradually falling, nonetheless, to the side of the forest glade in which the camp has been pitched there hang on the wire entanglements the signs: "Danger Zone" and "Contaminated". This picturesque glade was once filled with happy children's voices and songs, and evenings were lit up by pioneer bonfires. Several kilometers away is the "bleeding womb" of the damaged reactor which caused people so much disaster and trouble. Work on removing the consequences of the tragedy continues around the clock.

"We have been given a very serious and crucial assignment," Maj Gen N. Shmal, chief of the operational group, says, "deploying decontamination stations for decontaminating the equipment and organizing the constant radiac reconnaissance of the terrain and, naturally, work at the power station itself and in its vicinity. I would proudly

mention that people have proven two levels better prepared than I thought and that, what is very important, there is a sound psychological climate in the outfit." This was confirmed during a demonstration drill for other subunits. Everyone had an opportunity here to persuade himself once again of the high readiness of the personnel and the ability of the subunit commanders to organize close interaction. The men were quick to understand one another and operated shoulder to shoulder. Also reflected was the great deal of party-political work during the march carried out by the company deputy commanders for political affairs and Maj V. Brovkin, secretary of the party organization.

"What, Nikolay Fedorovich, is, do you believe, an indispensable condition for successful accomplishment of the mission?" I asked.

"In the present situation much depends on the extent to which we have shown concern for the men, their health and safety equipment. You will surely have noticed everything is provided for here at the medical station. A personnel radiac monitoring station has been organized. V. Chernov, lieutenant colonel of the medical service, and his assistants display constant concern for the personnel and the quality and variety of the diet. We have managed to reduce the radiation level in the dining areas and the storehouses to a minimum and bring it within the limits of the health norm. And credit must be given here to Maj A. Andrianov who was in charge of the construction of the entire food complex. This included polyethylene film, prepared roofing paper, wood particle board, asphalt, that is, material with a relatively smooth surface and for this reason amenable to treatment with water and decontamination solutions."

...To the right of the parade ground, where the parades, results sessions and evening inspections are conducted, are the Lenin rooms. The men can watch television and read newspapers and, in the evenings, meet in the clubhouse.

### The Soviet Character

On the first evening of my visit to the subunit the color film "Order To Cross the Border" was shown. The improvised theater was packed. One sensed something symbolic in the very title. There are borders here, in the "zone": a border of danger, a border of intrepidity and courage.

The flashes of light from the screen made it possible to observe audience reaction. How ordinary and at the same time exceptional these people are! The Chernobyl disaster has brought to light many new facets in them. In the very first days of work testimonials were conferred on over 20 men. They included Pvt V. Kucher, Jr Sgt V. Kovtunencko and Lt Col V. Primak.

Here is the account of the subunit party organization secretary reporting on one of the work days.

The order was brief: at the fourth unit right away, deploy the pump plants, extend the line of hose and pump out the contaminated water from beneath the reactor. The men were mustered in a matter of minutes. And the special

vehicles, cleaving the dark of night with the light of their headlights, were already speeding along the freshly sluiced asphalt. At the wheel of one of the vehicles was Pvt V. Kucher. Before he had joined the army, while working on a fire truck, Vasilii had repeatedly day and night gone at the sound of the alarm to tame the elements. The "For Valor at a Fire" medal attests his ability....

The "passengers" do not waste time: they check the tightness of the hose connections, get the necessary machine tools ready and set up the T-joint. Lt A. Shitikov, commander of the platoon, reports constantly to the communist V. Primak, leader of the group, on the radiation level. The closer to the station, the higher it is.

Simultaneously with the screech of brakes the men leap down from the vehicles and immediately set about paying out and connecting the hoses. Everyone understands that his own safety will depend on how promptly they operate. In a matter of minutes a line of hose almost 1 km long has already been laid.

"To the truck!" A. Shitikov's command rings out.

In an instant all the crews take their places in the personnel carrier.

Four persons headed by Primak remain at the deployed water supply system. Having checked once again the dependability of the hose connections, he gives the command for the pumps to be turned on. It can be seen with the light of a pocket flashlight how the hoses bulge under the strong pressure of the radioactive water. The engines of the pump plants hum forcedly, and the personnel carrier runs along the line with the duty shift.

It is important to mention that groups of volunteers are formed for the most crucial work, and many people who fail to become part of their number take real offense. Everyone wants to be not only a participant but also the performer of the most crucial assignments.

"I personally have difficulty in such cases," Maj S. Berezovoy, commander of a company, says, "I even hear complaints, why not me? I would do it no worse than anyone else."

...I caught sight of Lt L. Bulavko, deputy company commander for political affairs, in the Lenin Room, bent over papers. Officers and men would call in now and again and ask to whom they might give money. It turned out that everyone had decided to contribute to a fund for the restoration of the Chernobyl AES and assistance to the casualties part of his earnings.

To the right, on the table, lay the declaration: "We the undersigned wish from noble motives to contribute to the fund for assistance to the casualties of the accident at the AES...." There followed a list of the soldiers' names.

"They are now undergoing preventive examination," the deputy commander for political affairs said. "Medical inspection here is the strictest, and therefore they are cared for like children. The boys are operating selflessly, picking out anyone is difficult."

And the lieutenant told me the story of a customary assignment.

...It was necessary to decontaminate the decontamination center in the AES administrative building, collect all the heavily contaminated clothing, footwear and personal effects of the workers and take them out of the power station to the place of burial. A large part of the company personnel was at the decontamination station (DS) at this time.

"I will evidently have to get together a group of people who are available," the deputy commander for political affairs decided.

In a matter of minutes 18 volunteers were lined up. They included Privates O. Martyshevskiy, V. Konyushenko and V. Gerasyutenko and Jr Sgt V. Opanevich.

By 1700 hours the personnel carriers were already approaching the power station. While they awaited their orders they put things in shape in the "bunker"--piled up the work outfits, empty packaging and spent protective means.

At this time First Sergeant Zaporozhets, the radiation supervisor, was conducting radiac reconnaissance of the administrative building. The instrument showed an increased radiation level. It was necessary to make the decontamination center ready for work as quickly as possible. Duties were assigned immediately: some piled the contaminated clothing and footwear into polyethylene sacks, others carried them outside, yet others performed the washing. But this pile of sacks still had to be carted away. But on what? This job was undertaken by Pvt V. Gerasyutenko and Jr Sgt V. Opanevich--products of the DOSAAF motor school. The mission was soon accomplished.

#### The DS

Officers A. Shpilyuk and V. Brovkin readily consented to be my guides at the equipment DS. They decided to start with what was closer to the power station.

Concrete mixers, personnel carriers and special vehicles move in a continuous stream along the route to the AES. Upon their return, each of them compulsorily passes through the DS. Order here is the strictest--first, upon mounting the ramp of the rolling train, the equipment undergoes thorough radiac inspection, the data are recorded in the log and, depending on the extent of radioactive contamination, is dispatched for decontamination.

The powerful jet of the solution cuts under the vehicle fenders and into the wheels. It is here that the greatest quantity of radioactive dust accumulates. The crew works rapidly.

Rumbling, a personnel carrier slowly drives up to the train.

"This one has been sent for repeat decontamination, it did not pass the inspection," Capt A. Novitskiy, commander of a company, explains, "so it has to be 'washed' once and, perhaps, twice more. If this does not help, it goes to the 'punishment' yard. My men--Warrant Officer S. Bobertsov and Sr Sgt V. Lingul--indeed, everyone at the station, work with 100-percent guarantees. No vehicle leaves here if the contamination level is higher than prescribed."

At first sight the DS is simply an area with automatic pumps (the ARS-12) discharging the decontaminating solution. However, everything had to be provided for here. Film covers the bottom of the gutters, which prevents the contaminated water seeping into the soil. It runs off into a sump, whence it is taken to special radioactive waste burial sites. The station is supplied with electric power, meals are organized for the personnel and rest tents have been put up. Cable communications help regulate the flow of vehicles and distribute them among the DS evenly.

"We set all this up," Col G. Prisyazhnyy tells us, "in a very short time. Solving many economic questions in close contact with the soviet organizations of the rayon center of Ivankov, we have not found necessary materials wanting and even have our own artesian well, from which we get drinking water. Incidentally, we fill up the vehicles here to water the ground of the camp. People are operating skillfully and selflessly."

Later, analyzing all the meetings, conversations and trips, I recalled G. Prisyazhnyy's words, and I am as certain as he is: such people will handle the most difficult assignments.

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## MILITARY SUPPORT

### Mi-6 HELICOPTER CREW OPERATIONS

Moscow KRYLYA RODINY in Russian No 8, 1986 pp 8-9

[Article by N. Shtuchkin. under rubric "Heirs of Combat Glory": "Chernobyl: Over the Crater"]

[Text] Executing an assignment of great state importance in Chernobyl, they displayed skill, bravery, and high responsibility. The damaged unit was closed with a tremendous "stopper" weighing several hundreds of tons. The source of the danger -- the mouth of the crater -- was filled with sand, clay, and lead that were dropped from helicopters. The participants in this operation included an Mi-6 crew consisting of wing commander Major Konstantin Dubinin, pilot-navigator Senior Lieutenant Vladimir Pereskokov, and flight technician Senior Lieutenant Viktor Opimakh. After executing their duty -- civic, party and military -- they were returning home. And that is when we met them.

On 27 April, after taking off from a distant airfield, they landed in Sumy. They were supposed to fly to Chernigov, but thunderstorms were raging there.

To be completely honest, it must be said that no matter how Dubinin was rushing to the final destination, deep within his heart he had no objection to landing in Sumy: the landing there gave him the opportunity to meet his son, student at the Sumy Higher Artillery Command School Twice Red Banner School imeni M. V. Frunze.

...It was as though I was seeing double. Both men were tall, well-built, and good-looking. Oleg, like his father, also wanted to be a pilot, but an awkward situation had prevented him from becoming one: while he was playing hockey, he was injured in the eye by a puck. It was a slight injury, but he no longer has the sharpness of vision that a pilot needs. But Oleg could not imagine life outside the army, and so his father approved his decision to become an artillery officer. His brother Dimka, in a grown-up way, reassured him by saying, "I'll continue Father's job!"

We shall not paraphrase the discussion with the son, but shall only tell the most important thing that Konstantin Andreyevich was awaiting from his student son: "I'm proud of you! You and your crew have been entrusted with an important job. I'd like to be going there with you..."

The next day the crew landed in Chernigov.

"The assignment is a complicated one," the officer responsible for organizing the operation said. "Therefore at first you will go with an instructor, a pilot who has been here since the first day and who has had good experience."

That assistance was very necessary. The instructor, in the right-hand seat in the place where the pilot-navigator usually sits, pointed out and described everything that the crew had to know. It turned out that approaching the nuclear power station was not such an easy thing. They were hampered by a chimney 150 meters high at the very edge of the crater.

Nor could they hover over it in order to drop the cargo more accurately. There was a prohibition, as a precautionary measure: radioactive dust was still rising from the reactor that had gone out of control. Therefore it had to be approached at a speed of 140-150 kilometers an hour, and then, dropping the speed to 30 kilometers, they had to drop their cargo and leave. And they had to leave in a definite direction, along a strictly defined corridor where there could be no oncoming aircraft. And they were supposed to land on the city square in Chernobyl, or, to put it more precisely, on the flower bed. When they landed, the crew commander looked around. All around him were buildings, the train station, street lights, and wires.

"Of course it's not a very convenient spot," the instructor confirmed, "but it's very suitable for our work. It's only half a kilometer to the crater. It's possible to make 15 or 16 flights a day."

"The first day -- or, rather, the first afternoon -- we made seven flights. Five were with cargo to the crater. One was to measure the temperature over it. And one was to determine the radiation level," Konstantin Andreyevich said. "During the next day, a full one, we made 17 flights, and all of them were to the crater..."

Seventeen flights a day!

They were all complicated and very responsible ones. Each one required the entire crew's attention and efforts, since the crater, as a target, is not really so large. It is about 30 meters in diameter, and from the altitude of 180 meters from which it was being "bombed," it was no simple matter to hit it. Then the assignment became even more complicated...

"If the day had been longer," Viktor Opimakh said, "we could have made not 17 flights, but 20, or even more. We wanted to keep flying. Especially since the circumstances were favorable. Everyone all around us was working precisely, in an organized, well-coordinated way. There was very high enthusiasm."

"Which of those 17 flights was the most memorable one?" I asked all three.

They looked silently at one another, frowning slightly, and then, simultaneously, they smiled and said, "We don't whether this really happened, but we'll tell it!"

"The most memorable was with the instructor. We missed the mark..."

That unpleasant fact reconfirms the complexity of the mission. Before taking off, after the cargo had been loaded, the instructor had said, "Keep an attentive eye on the landmarks, especially at the moment of approaching the target. Drop the cargo on my command."

Proceeding toward the station, the crew knew that their helicopter, like the other ones, was being observed by the flight control officer, Colonel Boris Aleksandrovich Nesterov. His improvised KDP [command-control point] was situated on the roof of one of the highest buildings, not far from the nuclear power station. A Military Pilot 1st Class, before going up onto the roof to the command radio set, he had taken off in a helicopter and flown over the fourth unit. Now, firmly established in his role as flight control officer, he was helping, suggesting, and even giving the command to drop the cargo.

"Do you need my help?" he asked 636, Dubinin, when the helicopter was approaching the nuclear power station and was already reducing speed. But the instructor, having made his determination, answered firmly, "Thanks, but I don't need it!" Those words surprised Dubinin slightly: he would not have answered that way. He would not have refused the help. Pressing closely to the left blister, he was observing the approach of the crater, and was aiming. According to his computations, there were still one and a half or two seconds remaining, when the instructor gave the command. He smoothly pressed the button and immediately heard the colonel's angry voice: "You've dropped it too soon! What's the matter with you, comrade pilots?"

You can imagine what Major Dubinin was thinking. He had seen that it was too early. He had seen! Why hadn't he interfered? Because the instructor could have made a mistake. The flight technician was thinking the same thing. As they were approaching the fourth unit he was sitting near the open hatch, looking at the position of the cable and the cargo relative to the crater, and he too could have prevented the mistake.

"Well, I goofed a little," the instructor said after landing, "but I can't understand why."

The reason for the error was explained by Pereskokov.

"You didn't take into consideration the difference between your Mi-6 and ours. Ours is improved and has different engines. In addition, your cargo was in the fuselage, and ours was suspended."

Vladimir opened the plotting board and made a simple computation on a piece of paper. After looking at the plan and the figures, the instructor said, "You've convinced me." Then he added, nodding his head toward the crew commander, "I'll tell the flight control officer: you can manage independently."



Remaining as a threesome, they replayed the mission, loaded the aircraft, and flew it, firmly confident about their success. Over the radio the picture of what was occurring in the air was recreated. The colonel guided to the target the crew that was proceeding in front: "One hundred meters to the objective, 50, 30, 10, 5... Drop!..."

"636, will you be dropping it yourself, or do you want help?", Dubinin's crew was asked.

"We'll do it ourselves," the major answered.

Now they are at the crater. On the right, a little farther below, the chimney. On the left, the main building of the nuclear power station, where the reactor was. The roof is turned back, the twisted armatures are sticking out everywhere, and one can see black charred areas, numerous screees...

"Two seconds remaining... One second... Drop!", the pilot-navigator commands.

"Drop executed!", the flight technician confirms.

A short time goes by, and then the report: "Everything is normal, 603. Keep operating that way."

In a minute or two a question comes in from the radio set: "Did you see three areas on fire in the crater? From now on, aim only at them!"

That was gratifying -- Colonel Nesterov was convinced about their skills. But the mission had become much more complicated: the size of the target was small. Consequently, it would be necessary for the navigator to examine the target longer through the blister -- the transparent window built into the side of the aircraft next to the seat -- and for the technician to remain longer at the open hatch. In the next flight Dubinin suddenly remembered: he looked at the technician's radiation indicator and frowned. The radiation dosage was increasing.

"Nothing too terrible. Everything is within the limits of the norm. I feel fine," Opimakh said. Then he said jokingly, "I'm ready to work day and night, if they'll let me."

Not too tall, solidly built, and agile, he was looking firmly into the commander's eyes. But the commander did not make any compromise.

"We'll have to aim more quickly. Remember that as soon as the instruments register the limit, they'll remove us from the flights. You know that, don't you?"

Of course he knew. They couldn't fail to know. They were reminded of that by the masks and the rubber shoes that they had put on as protection. But the radiation indicators had to say the last word. Everyone had one. The instruments act as dosage accumulators, and a determination had been made of

the limit beyond which it was categorically forbidden to go. And everyone was required to keep an eye on that, especially the crew commander.

"We forgot to be cautious," Opimakh says.

And actually they had forgotten. The radiation cannot be felt. If it made its presence known somehow, for example, if it blinded, stabbed, or suffocated them, or caused them pain, of course they would have remembered it. But nothing like that occurred. But they had work to do. Constant, strenuous work.

Everything was difficult and complicated. It's no simple matter to lift a cargo weighing two tons and carry it suspended. It's one thing to attach a hook onto a container that is specially designed for that purpose, and a completely different thing when the cargo is sacks. If you have 10 or 12 sacks, how do you grab onto them? You only have one cable, and there's also only one hook on it. However, they adapted. Moreover, they thought of a way to simplify the job and expend less time.

There was a rather large number of different ways to grab onto the cargo. The sacks were even put into packing materials in a way that made Dubinin's heart skip a beat: every drop was very expensive -- together with the sacks, the packing materials were consumed by flames. He suggested his own way, which was simpler and more economical. Then he improved even that method. Saving time and the efforts of the people in the loading operations, he began picking up the loads not from the ground, but directly from off the arriving trucks -- while the helicopter was hovering.

In Chernobyl at that difficult and terrifying time one could see completely revealed once again the monolithic nature of our society, its great humanitarian spirit, the unity of the party and the nation, and of the nation and the army, and the strength of the combat and labor traditions and the friendship of nations. And these are not simply words. Those words are backed up by people's actions. Incidentally, when I listened to Major Konstantin Dubinin and Senior Lieutenants Vladimir Pereskokov and Viktor Opimakh -- in a discussion among ourselves, or in a general discussion -- everything was boiled down to just one thing: they were doing a job. They are working in exactly the same way that they work at their usual place of assignment, or wherever they fly to render assistance in combatting floods or forest fires. It's just that here the work is a bit more concentrated, more responsible, more organized.

I look into their faces and try to notice something special, because they are the heroes of the day! But I cannot find anything unusual in the faces of these people. Handsome, yes. Open, yes. Kind, yes. There is, of course, much that is in common for many of them, but everyone has something that is his very own, that is unique.

Konstantin Andreyevich is a person who knows how to reach the goal that has been set. During his young years he went to the Kazan Aviation Club and flew a Yak-18. In order to continue the job that had been begun, he had to retrain on a helicopter. So he went and mastered the Mi-1. He served in the army.

After passing examinations as an external student at a higher pilots' school, he worked as an instructor and taught the young pilots. After the officer's experience was evaluated, he was asked if he wanted to serve in a combat air unit, and he agreed. He began flying an Mi-4, and then the giant Mi-6...

Vladimir Pereskokov. Graduated five years ago. Assignment: wing navigator; in the crew, the right-hand pilot or pilot-navigator. An important role in his life was played by his grandfather, Semen Leontyevich Maslov -- a former aviator and mechanic at the prerevolutionary Kachinskaya aviation school. A photograph of him shows him standing in front of the wing of a Farman, and, as a remembrance, a 1910 issue of VESTNIK VOZDUKHOPPLAVANIYA. Participant in World War I. The best blacksmith and mechanizer in the region. He died in the 93rd year of his life, on the third day when Vladimir, having graduated, had arrived on leave. KIROVSKAYA PRAVDA wrote about Maslov. Very warmly. And it reminded Vladimir: the grandson had taken the path of his aviator grandfather.

Viktor Opimakh. "There probably are no other people who love and know equipment the way he does. Any kind of equipment. He has a truck, probably not so that he can ride on it, but so that he can take it apart, put it back together, and adjust it," Konstantin Andreyevich says. And others say the same thing -- the pilots and the technicians. When the squadron received the Mi-6 helicopter, the squadron engineer remembered Opimakh first of all: "What's he going to take apart? All the units are sealed..."

Viktor came into military aviation from civil. A long time ago, in 1969, he graduated from the Vyborg Aircraft Maintenance School. For five years he worked in one of the combined detachments and all that time dreamed about going into the army, about working as a flight technician. He kept working toward that goal. And now he is flying. His certification in his speciality is "Master technician." That's the highest there is.

...None of them has ever been in a war, has ever looked the enemy in the eyes, or looked death in the face. But a person who has done all these things will say: they are worthy of their fathers' glory.

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## MILITARY SUPPORT

### MILITARY HELICOPTER CREWS FIGHT CHERNOBYL DISASTER

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 8, Aug 86 (signed to press 3 Jul 86) pp 10-11

[Article, published under the heading "Heroes Among Us," by Maj A. Zhilin: "Lending a Helping Hand"]

[Text] When disaster struck at the Chernobyl Nuclear Power Plant, people displayed self-control, courage, organization, and cohesiveness in a difficult situation. Military aviation personnel from the guards helicopter regiment under the command of Gds Col A. Serebryakov were among the first to join the effort to localize and neutralize the consequences of the disaster. They played perhaps a decisive role in averting the threatening danger.

I met Military Pilot 1st Class Guards Colonel Serebryakov at the Central Military Aviation Scientific Research Hospital, where he was undergoing a precautionary medical examination. It was a quiet, sunny day. There was a mischievous twinkle in Aleksandr Ivanovich's slightly squinting eyes. His soft, engaging smile somehow did not initially gibe with the picture I had imagined in connection with that highly difficult and, quite frankly, dangerous mission he had been performing, subjected to the enormous burden of physical, emotional, and psychological stress. Only after our conversation did it become clear what an enormous store of spiritual and moral fortitude this officer possesses.

...In the middle of the night the phone rang.

"Comrade guards colonel, we have just received orders from higher headquarters to ready an element of six helicopters to operate out of cramped landing sites," the unit duty officer reported.

The regimental commander ordered: "Send a bus immediately for the aircrews of Yakovlev, Bilogan, Nikolayev, Ryzhov, Bezverkhii, Savostin, and Voytko. I am leading for the base."

Hanging up the phone, Aleksandr Ivanovich thought for a moment. What was the reason for such haste? Although he was given no more information, he as commanding officer had plenty to ponder.

"What happened?" his wife asked, not concealing her alarm, still not accustomed to phone calls in the middle of the night even after years of marriage.

"Just routine. I've got to go over to the unit and handle a couple of matters," smiled Aleksandr Ivanovich to calm her, and quickly proceeded to get dressed.

During the entire ride out to the airfield, which seemed unusually long, Serebryakov pondered the possible reasons for the emergency phone call. He asked himself for the thousandth time why district air forces headquarters had ordered heavy helicopters made ready? After all, it was no easy matter for the crews of these aircraft to work at night out of cramped landing sites, if only because they lacked spotlights. That meant they would have to ready an additional pair of Mi-8s, which carried everything needed for night operations. Judging by all indications there was a serious matter afoot.

In the meantime the jeep entered the base main gate and headed toward the airfield command post.

"Comrade commander, the helicopters are ready to go. The crews will be here any minute," the duty officer reported.

"Fine. Get two Mi-8s ready as well. I'll go up myself in one of them."

At the command post the regimental commander saw his deputy hunched over a map.

"Here is the situation, comrade commander," the officer immediately began. "The element is to proceed to this grid square.... Something has happened at the Chernobyl Nuclear Power Plant. Apparently they need our help. Departure whenever you say."

"Now I am beginning to get the picture," said Serebryakov and, after a short pause, took an aircraft plotter and added: "Let's plot the route."

The officers proceeded to plot the route. Preparation of the helicopters for departure was in full swing out on the ramp. Officers O. Gasayenko, A. Odinets, A. Rakityanskiy, O. Anisimov, and I. Telegin, and Warrant Officers N. Dodatko, A. Pashko, D. Ruban, and V. Gritsko bustled about their helicopters. Having arrived at the airfield, pilots and navigators officers V. Degtyarev, V. Kaufman, N. Koltsov, S. Solodkiy, V. Balakhonov, and others went to work.

It was after midnight when the departure order came. The weather was not good: there was low, heavy cloud cover, and it was so dark that the flashes from the rotating beacons reflected brightly back from the cloud bases. Thunderstorm activity was building up ahead en route.

"Everybody maintain maximum alertness," the wingmen heard the commanding officer's calm voice over the radio. "We'll swing west around the thunderstorm activity...."

Guards Colonel Serebryakov glanced at his watch: they would soon be at their destination.

The helicopters touched down precisely at their ETA. The high degree of skill and experience of these aircrews and the foresight of their commanding officer were in evidence at the very first phase of their mission.

At the destination the aircrews learned something about what had happened.

Early that morning Gds Col A. Serebryakov and Col B. Nesterov, deputy commander of air forces of the Kiev Military District, flew over to Chernobyl. When the officers arrived at the party city committee, representatives of party and soviet agencies and state commission members were already there. Experts had concluded that sand, special chemicals and lead had to be dumped onto the stricken reactor as quickly as possible, to prevent the escape of radioactivity. But how could this be accomplished? It could not be done from the ground. That meant there was only one way to accomplish it -- from the air.

After Col B. Nesterov gave Serebryakov a situation briefing, the regimental commander gathered together his helicopter crews. He always conferred with his men at difficult moments.

"We must give thought to how the mission can best be accomplished," Serebryakov addressed the aircrews.

"We shall discuss the entire problem right now and report what we have come up with, comrade commander," said the regimental deputy commander for aviation engineer service, Lt Col S. Yurko.

The search for ways to accomplish the critical mission began. Engineer and technician personnel suggested loading sandbags and securing them to the ordnance mounting pylons, and subsequently dropping them onto the reactor. It was a good idea, but how could they make full use of the helicopters' payload capacity?

Civilian workers approached Nesterov and Serebryakov.

"There are some iron buckets in the tool shop. Can they be adapted for the job?"

The buckets were large, for tower cranes. This was fine, but how could the helicopters be rigged to carry them?

"Here is how we'll do it," said Serebryakov. "I'll have them weld cables here and here. The two rear cables will be connected together."

While the technicians worked on adapting the crane buckets, Colonels Nesterov and Serebryakov headed out toward the helicopters. They were to make a reconnaissance flight.

Taking off, they took an aerial tour of the power station, assessing the general situation, then set down in the local stadium and took passengers on board -- state commission members, specialist personnel, and a film crew. The helicopter made a 360 degree banked turn around the reactor. There was plenty of work to go around. The cameramen endeavored to record the accident as fully and accurately as possible.

At this point we should particularly emphasize the fact that the Western press, pursuing a policy of zealous anti-Sovietism, reported throughout the world that a "catastrophically dangerous" accident had taken place and disseminated a totally phony story about "immense" casualties at Chernobyl. This film, taken on the first flight over the reactor, was immediately shown on Soviet television and exposed all the lies being spread by bourgeois propaganda.

The second reconnaissance flight was more complicated. Serebryakov had to determine possible configuration and parameters of runs over the reactor. The pilot flew over the reactor building. From a height of 300 meters the reactor crater looked like a huge, hot frying pan glowing around the edges. They descended to 150-200 meters. This was unquestionably risky, for a wrong control movement or ill-considered change in engine operating conditions could lead to undesirable consequences. But the commanding officer flew with great skill.

After returning, Guards Colonel Serebryakov reported to the officials in charge: "I consider it advisable to operate at a height of 200 meters, at an airspeed of 50. It would be dangerous to drop any lower: the hot air could cause the engines to stall."

The commission members approved his decision.

"Comrade commander, may I comment on delivering payload?" Lt Col S. Yurko addressed Aleksandr Ivanovich. "The buckets are ready. But I do not feel that this is the best solution. Each bucket weighs more than 100 kilograms. I suggest that parachutes be used on the other helicopters, using the 'apron' principle."

The regimental engineer explained: "Two free ends of the parachute would be secured to the mounting racks, while the other two would be attached to the weapons station hardpoint. Push the release button at the proper time, and it will open up like an apron, releasing the sandbags."

"Do it!" the regimental commander approved.

Another problem arose during preparations to release payload: how should they approach the target in order to achieve maximum accuracy of release?

"Here is what we can do," Colonel Nesterov suggested. "I shall assist by radio."

...The reactor was clearly visible from his position. Colonel Nesterov selected appropriate reference points and contacted the regimental commander by radio: "I have visual observation of the target. Approach heading... reference points...."

The helicopter approached the center of the crater at minimum airspeed. Navigator Maj S. Nikitin carefully aimed and released the sandbags from the pylons. He scored a direct hit. Then the commanding officer dropped the main payload at the controller's command. The sacks fell right into the middle of the reactor. Flight technician [crew chief] Senior Warrant Officer Vyshkovskiy dropped packaged materials out of the cargo cabin.

A helicopter flown by Lt Col Yu. Yakovlev followed the commanding officer's helicopter to the initiation point of the bombing run. Navigator Sr Lt V. Balakhonov sighted the helicopter on the target. The information received from Colonel Nesterov confirmed the navigator's flawless precision. Bombs away! Direct hit.

As the loading site the helicopters came into the solicitous hands of the ground crews. Without losing a single minute, officers S. Yurko, A. Volkov, N. Gavshin, Yu. Kolychev, V. Streletskiy, and A. Khodarenok, and warrant officers V. Ryumshin, A. Khleborodov, M. Katyuk, and N. Ganzhuk quickly mounted the payload, at the same time inspecting the aircraft. By the end of the first day each of the technicians and mechanics had relayed more than a ton of sand. The work load increased when Mi-6s and later Mi-26s as well joined the operation, capable of carrying more than 4 tons of payload. An almost continuous stream of sandbags and lead plummeted onto the reactor.

Aircrews competed with one another, each endeavoring to fly the greatest number of sorties and to hit the target with greater accuracy. Nobody specifically worked on organizing such competition. It resulted from the acute need to accomplish the task faster and better. The crews of Lt Cols Yu. Yakovlev, S. Bilogan and V. Nikolayev, Maj N. Ryzhov, Capts V. Bezverkhii, S. Savostin, and K. Voytko set about the job with enthusiasm, in spite of all the difficulties involved.

Many of the Air Force personnel who helped combat the disaster acquired combat experience in the skies of Afghanistan and hold coveted government decorations. In particular, Gds Lt Col A. Serebryakov was awarded the Order of the Red Banner. Those missions taught the helicopter crews a great deal and gave them mental toughness, for they frequently were compelled to fly under dushman [Afghan rebel] machinegun fire. The ever-lurking danger forced them to be alert at all times and demanded courage, self-sacrifice and at the same time wary cautiousness and sober calculation.

...By the end of the first day of helicopter flights, the situation at Reactor No 4 had significantly improved. The flames had been beaten back, and the radiation level had dropped.



But this was only the first step toward victory. As he was resting after 17 very difficult sorties, Serebryakov recalled a mission in Afghanistan which had been equally difficult. Helicopter aircrews had been assigned a mission to deliver a subunit of Afghan soldiers to Black Mountain. It had been given this sinister name due to its rugged inaccessibility. Many defenders of the Afghan revolution had fallen from dushman bullets at the foot of this mountain. Aleksandr Ivanovich knew that on the mountain peak there was only one tiny site more or less suitable for putting down. He also knew that it was vulnerable to hostile fire from all sides. But there was no other choice.

When the six helicopters reached the destination area, fire in the mountains abated. The dushman were waiting for the Soviet helicopters to land, upon which they would pour intensive fire onto them. Officer A. Tyrykin's crew was to be the first to land. Circling once, twice, he suddenly reported: "The engines are responding poorly; my ship is overloaded."

Serebryakov ordered him to return to the base. Captain Kurilov commenced a landing approach. When the helicopter came to a hover above the landing site, a machinegun burst smashed the windshield. A round struck the courageous pilot in the heart. But the helicopter did not plunge groundward. The copilot safely landed the craft and unloaded the troopers. Serebryakov came in next, provided cover by his comrades. A bandit-fired round pierced his headset one centimeter to the left of his temple. After the troopers had dismounted, the pilot took off and commenced a banked turn at a height of 100 meters above the mountaintop, seeking to draw dushman fire; spotted weapon positions were immediately taken out by the other helicopters. Of course this was taking a big chance, but party member Serebryakov took such a chance in order to save people's lives: while the bandits were pouring fire at his helicopter, other crews picked up wounded.

Here at Chernobyl Aleksandr Ivanovich and his men were risking their own lives for the sake of the safety of hundreds and thousands of Soviet citizens. And perhaps it was even more difficult on this "field of battle," for they were faced with a dangerous and insidious foe -- radiation, which at first gives no hint of its presence but does its damage little by little. It is evidently for this reason that Serebryakov recalled the combat incident.

Thinking over these events, the regimental commander was aware of a special feeling toward his men with whom he had flown to Chernobyl: a feeling of confidence in the men and a profound respect for them because the most important concept for them was "our" and "the people's," with "my" and "my own personal" back in second place. He knew that if necessary every one of them was willing to give his life for the welfare of our country. These ordinary Soviet lads have been brought up to be unable to be indifferent toward other people's troubles, wherever they might occur.

...The few hours of rest went by swiftly. The aerial bucket brigade resumed at dawn on the following day. Once again the commanding officer was the first up, followed by his men. Once again Colonel Nesterov, microphone in hand, guided them from the ground. Boris Aleksandrovich refused to leave his post even to eat -- meals were brought right to his duty post.

This process continued virtually without interruption. The reactor was "sealed" tight on the third day. But the flights did not cease. Soon other aircrews arrived and joined the effort. But the first still remained first. It is they who accomplished the main task. And although it is not possible to list all their names, I am confident that nobody will be forgotten. The fine deeds accomplished by the guards helicopter crews will receive due praise.

After a brief rest and a precautionary medical examination, all airmen proceeded with their scheduled flight activities.

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## MILITARY SUPPORT

### KIEV MD SUPPORT BY REAR-AREA SPECIALISTS

Moscow TYL I SNABZHENIYE SOVETSKIKH VOORUZHENNYKH SIL in Russian No 9, Sep 86  
pp 37-39

[Article by Major A. Uzhegov under rubric "Chernobyl Nuclear Power Station: Stories About Rear-Area Specialists": "At the Command of One's Duty"; first three paragraphs are TYL I SNABZHENIYE introduction]

[Text] Speaking on Soviet television on 14 May, Comrade M. S. Gorbachev emphasized that the damage caused by the accident at the Chernobyl nuclear power station had proven to be limited to a decisive degree as a result of the bravery and skills of our people, their faithfulness to their duty, and the well-coordinated actions of everyone who participated in eliminating the consequences of the accident.

A broad program for deactivating the territory around the electric power plant and the settlement, as well as the buildings and structures themselves, has been developed and is being carried out. The necessary manpower and material resources have been concentrated for this purpose. In order to prevent the radioactive contamination of the water basin, measures are being carried out both at the station itself and in the adjacent territory.

The manner in which the rear-area specialists are operating during this difficult time of trials is discussed by our correspondent, who visited the area of the nuclear power station.

...The situation at the headquarters of the rear area of Kiev Military District is a businesslike one and is not conducive to conversations: intense work is being carried out. Information that requires the making of immediate decision comes in constantly. Major-General A. Lopatin, who recently arrived from the area of the nuclear power station, says, "Under the unusual conditions that arose as a consequence of the accident at the nuclear power station, a considerable load has lain on the shoulders of the rear-area specialists. The problems include the providing of support in the form of food supplies, personal articles, and medical treatment, the bringing in of cement, nitrogen, and other material means, the organizing of the everyday living conditions for the fighting men in the field, and a number of other problems. In any of them -- and I emphasize this -- there are no minor

points. Everything is subordinated to the chief goal -- the elimination of the consequences of the accident within the shortest period of time."

Lying on the general's desk are several mimeographed leaflets telling about Communist Party members who are rear-area specialists. April 26 became for them a new starting point for computing their service and their life as a whole.

Under the guidance of the chief of the district's medical service, Major-General of Medical Service A. Fadeyev, much has been done to improve the service's material-technical base, and that has made it possible to introduce into practice at therapeutic institutions new methods of diagnostics and treatment. That undoubtedly has had a favorable effect and currently the military medics are working successfully in the area of the nuclear power station. The party organization secretary at the district's fuel service, Lieutenant Colonel P. Bezhnar has found good use for his rich experience in operating and maintaining technical equipment. The officer's personal example and his knowledge of the job at hand helped to consolidate his subordinates and to guarantee the continuous receipt of fuels and lubricants at the area around the nuclear power station. The no less complicated task of bringing in the material means was assigned to the motor-transport personnel, who are commanded by Lieutenant Colonel N. Klimov. It is here that the readiness of the subdivisions for the transporting of freight, and the impeccable maintenance of the equipment, are checked...

A little bit later, in a conversation with an officer in the political department of the district's rear area, I said that the fighting men had not been working for just one or two days, and I asked what was helping to maintain their combat mood.

Lieutenant Colonel S. Madraimov replied, "The personal example of the members of the Communist Party and the Komsomol, and the efficient organization of the job, because the slightest delay, the slightest lack of coordination here are simply inadmissible. When it was necessary, for example, to have cement to reinforce the foundation of the damaged power unit, as well as nitrogen to cool the reactor, the truck drivers displayed true selflessness. And Colonel V. Fits, the chief of the district's motor-transport service, reconnoitered the routes for bringing up the materials directed to the damaged sector of the nuclear power station and also accompanied the motor column. By doing these things he largely guaranteed the lessening of danger to the fighting men's health."

We would like to add to what was stated by the political officer that he himself, from the very first days of the accident, was in the area of the nuclear power station and by word and deed mobilized the fighting men to perform their military duty.

For purposes of the effective organization of rear-area support, an operations group for the district's rear services was created. The group is headed by deputy troop commander for rear services, Major-General V. Litvinov. Something that I would say is typical of the work of this group is the specific resolution of specific problems, the constant attention to "hot

spots" that determine the successful progress of the operations. In the most critical sectors one can always see Major-General V. Litvinov himself, as well as his assistants -- officers V. Bogachev, Yu. Gruznykh, A. Subbotin, Yu. Budunov, and V. Plastinkin. Moreover, when they execute their tasks, a job that usually takes weeks is executed in only a few hours or days.

Along the road leading to Chernobyl there is a constant stream of trucks -- cement trucks, dump trucks, refrigerator trucks. Alongside of them, the vehicle in which, together with medical service officers A. Piterkiy and S. Usachev, we are en route to the nuclear power station looks modest. But there is no need to talk about the importance of the tasks confronting the medics: it is necessary to monitor strictly the conditions in which the fighting men are working at the station, eating, and relaxing.

...Remaining on the other side of the vehicle window is a nice-looking structure of rather substantial dimensions. "This is one of the special processing points," Captain S. Usachev states. "It was set up in record time -- literally in only a few days. The equipment that has been in the zone is carefully decontaminated here. If necessary, the processing is carried out twice. The vehicle has to come out of the processing clean. Incidentally, no one complains about the delays: the maximum vigilance is a law for the special zone." We were convinced many times of the validity of this statement by the officer...

Now we are near the administrative building of the nuclear power station. For the time being, it is possible to work here only if you are wearing a mask. But in the vestibule the situation is different: one can benefit from the protective properties of the building and from the purposeful preventive measures.

Mounted in a prominent place is a diagram showing the safe travel routes on the territory of the nuclear power station. Standing in front of the diagram are several fighting men from the next shift, which is getting ready to go into the area of the fourth reactor: it is definitely not a superfluous act to recheck the routes they can take. A little farther away is the medical station. There we are met by Lieutenant of Medical Service V. Fishchuk, who invites me to look around his "outfit." Everything is absolutely clean and in impeccable, well thought-out order. Valentin Pavlovich says, "As soon as the radiation dosage approaches the admissible level the person is replaced. We can't risk people's health. Subsequently a course of preventive study is carried out. I might note that the number of ordinary diseases -- respiratory diseases, for example -- is minimal. One reason is that, under the conditions of danger, the organism's hidden reserves are mobilized, because, just as happened at the front -- we might recall for purposes of comparison -- people became ill much less frequently."

Yes, the situation at the nuclear power station does not allow anyone to ease up: the enemy is radiation, and he is by no means an imaginary one. But the struggle against that enemy is being carried out according to all the rules. As each shift comes off the job, the fighting men go to the medical processing center where they wash themselves off and immediately change their underwear, uniform, and shoes. The used sets of clothing are sent to the laundry and are

decontaminated. Several times a day everything is swabbed down and the proper order is maintained.

In the corridor at the medical processing center we meet Junior Sergeant N. Katerusha, who is carrying an atomizer in his arms. His resemblance to a scuba diver is enhanced by the large tank on his back: he is processing the areas with the purpose of disinfection and disinsectization. Incidentally, the effectiveness of this work is attested to by the complete absence of diseases of an epidemic nature.

In the laundry section to which the uniforms and shoes are sent from the medical processing station, the shift on duty is under the guidance of Senior Lieutenant V. Kirsanov. Private V. Klemenchuk, with the aid of a radiation gauge, is sorting out the shoes. The shoes that have to be processed go to Junior Sergeants A. Yuzvak and A. Kurena. They load the shoes into machines and process them with a special liquid. Then the shoes are put into a drying chamber. When they come out, they are rechecked for the level of superficial radioactivity. The result, as a rule, is satisfactory. Major A. Piteriski brings the instrument probe close to the next batch of shoes that have been processed and nods his head to confirm that everything is normal...

Our itinerary takes us across the territory of the electric power station. The radiation level here has dropped considerably as compared with the initial level and continues to drop. The fulfilled volume of decontamination operations evokes a sense of jubilation on the part of the enlisted men, sergeants, warrant officers, and officers, who have worked and are continuing to work unstintingly.

Near a building a group of fighting men is unloading a truck. The work is being organized by the senior officer in the district's personal-equipment service, Lieutenant Colonel Ye. Naymushin. "We have brought in new uniforms and underwear," he tells us, sharing his concerns. "We make trips like this every day. In anticipation of unforeseen circumstances, we have created at the station a reserve which has to last for several days. My assistants, I must say, have not been letting me down." We talk to several fighting men. Junior Sergeant S. Klyushkin remarks that people's willingness to help one another and to rescue one another from dangerous situations at the electric power station is especially obvious. For example, truck driver Private Ye. Lopatin could be resting now inside the building, but he is working with all the others to unload the truck. And that's what happens on every trip. Do you think that this is only a minor point? But there are hundreds of situations like this. And they include simply heroic ones.

Later on we learned about gasoline refueling truck driver Private O. Menchuk. Exceeding all the established performance norms, within only a few minutes he refueled those vehicles that had been pumping the water out from under the reactors, and those that had been digging the construction foundation from which a tunnel was subsequently built under the foundation of the fourth unit. When it came time for the soldier to go off shift, Oleg Menchuk asked if he could remain at the temporary fuel and lubricants depot, so that he could help his comrades who were refueling and servicing the vehicles at the electric power station.

"Our people are remarkable. They look dangers in the face without fear," Major-General N. Zemlyakov, who is directly in charge of the work being performed by the fighting men at the nuclear power station, said. "If you think about it, it's simply that they realize that it's the call of duty."

Our story about the rear-area specialists operating in the area of the Chernobyl nuclear power station would be incomplete if we did not mention one of the typical attributes of the intensive life in the ancient city of Chernobyl. It is summertime, the sun is glowing, and people want to take a drink. And all of a sudden, as though guessing what we wanted, a canteen truck from the post exchange comes to a stop near the road. The items for sale include mineral waters, different kinds of juices, and necessities of life. The line moves quickly. "When you hear people thanking you profusely," driver Roman Udod says, "you just have to ask for authorization to make additional trips. Because items are arriving constantly at our temporary field base."

At the roadside post exchange cafeteria you can not only quench your thirst, but can also eat a tasty lunch. Moreover, all this requires the minimum amount of time. Seated at the little tables are military personnel, people wearing white and blue jumpsuits, and militia men. The quality of the food gets good grades. The cafeteria is run by Sergey Kolesnichenko, who is an expert in his field...

When talking with the rear-area specialists you notice that they see their sacred duty in assuring that the driver seated at the steering wheel of a cement truck, the military chemists who are carrying out the decontamination, and everyone else who is working in the area of the nuclear power station feels the constant concern that is being shown to them and is provided with everything that he needs. This, in the final analysis, is like a gulp of water on a hot, scorching day.

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## MILITARY SUPPORT

### DOSAAF MEMBERS AT WORK

Moscow VOYENNNYYE ZNANIYA in Russian No 9, Sep 86 pp 34-35

[Special correspondents G. Chernomorskiy and I. Shabrov report: "The Chernobyl Epic"]

[Text] Friday proved a difficult day. On Monday the commission was to accept from the construction workers the military-technical training center, and A. Chetkov, chairman of the Pripyatskiy DOSAAF Gorkom, was for the umpteenth time making the rounds of the corridors and rooms of the new building. To be honest, Chetkov was not delighted with the project. Located on ulitsa Lesi Ukrainki, from the outside the building looked squat and not as aesthetic as the surrounding homes. "The ground floor should have been higher," Aleksandr Nikolayevich thought, "then everything would have been alright." On the other hand inside skilled craftsmen of the Chernobyl AES Construction Administration had put in a conscientious effort. There was nothing to find fault with here. The walls and ceilings had been finished well, the window frames closed tightly, but without undue effort, and the floor was smooth, you could organize dances. In a word, bring in the equipment, and let's get to work.

Pleasing also was the 50-meter shooting range on the third floor. The loopholes and hoists had been cleverly installed, and the lighting was excellent. Even the overhead shields of the bullet traps did not spoil the outward appearance and even lent a certain airiness and elegance to the building. It would now be the rifle. Chetkov would take his place with delight in the firing position. He had not shot from a small-caliber gun for quite a time. He had served for a considerable length of time in the Red Banner Northern Fleet. Like other officers, he had trained mostly with a pistol, and the small-bore rifle had been unsuitable. Following his discharge, the major in the reserve had worked as chief of staff of a facility's civil defense. Here also there was no shooting. When, on the other hand, last December, he was elected chairman of the Pripyatskiy DOSAAF Gorkom, he did not let slip a chance to shoot.

"How could it be otherwise," Aleksandr Nikolayevich reasoned, "not only words but personal example also are needed to lead people."

Having once again sighed that there was no gun or target to hand, Chetkov set off for consultation with A. Gamanyuk, first secretary of the Pripyatskiy Gorkom.



"Well, did you like the center?" the gorkom secretary addressed Chetkov.

"I have no complaints of the construction workers. I will sign the deed."

"Signing is a simple matter."

"So then we can....," Chetkov was about to say.

"I know that you are not among the last in the oblast," the secretary stopped him, but there are, after all, the old successes, and now these are the kind of facilities DOSAAF has, and special demands will be made. We need to select the staff of the sports-technical club as quickly as possible, and then to work."

From the old gorkom premises Chetkov dialed Kiev per the code and reported to E. Lakomov, chairman of the DOSAAF obkom, that everything held good.

"Good," Lakomov answered, "I will unfailingly attend the acceptance of the building. If we live until Monday, as they say."

This conversation took place at 1800 hours on 25 April 1986.

Such were the plans.... But in the morning of 26 April Aleksandr Nikolayevich was summoned to the party gorkom:

"A serious accident at the AES. It is as yet difficult to determine its dimensions and possible consequences. It will obviously be necessary to totally evacuate the population. You are assigned the fifth microregion--this means Geroi Stalingrada and Stroiteley streets, Gidroproyektovskaya.... Some 4,700 persons live here alone. They need to be got ready, and as soon as the buses have been supplied, evacuated in organized fashion."

"Yes Sir, conducting the evacuation," Chetkov replied and, precisely, turning in military fashion, he set about carrying out the assignment.

He immediately called V. Yegorov, chairman of the Chernobyl AES Construction Administration DOSAAF primary organization, and gave him forewarning of the need to prepare to ship out the guns and then was able to call home only about 40 minutes later while making the rounds of the apartments on ulitsa Stroiteley. Hundreds of buses with their lights on sped toward Pripyat from Kiev and other cities of the oblast. Local radio announced the start of the evacuation. Grabbing essentials, people left their apartments and the city where they had lived and worked. Their route lay toward Poleskiy and Ivankovskiy rayons. It had been decided to put up the evacuees here. True to the good old naval custom, Chetkov headed for the party gorkom to report completion of the assignment.

The first secretary was seated in his chair. Looking drawn from having been awake all night, he listened to Chetkov attentively. He then said, as if keeping score before someone:

"That the population has been evacuated is good and that the fire has been dealt with is also a victory. The main thing now is shutting down the other reactors." He paused and, addressing Chetkov now, continued: "The gorkom will be in Poleskiy. Temporarily. We will meet up there."

Picking up his papers, Chetkov then, together with the militia officers, removed the guns. A few days later he was once again in Pripyat. He had received a call that some residents, elderly people, as a rule, not having grasped the entire danger connected with remaining in the city, had decided to stay put.

So the communist made the rounds of the apartments. One, another, hundreds. He did not look at the memory, which was already showing a substantial dose of received radiation, but continued to perform his duty. Like soldiers at the front, like the firefighters who had perished, fighting the fire, but not retreating.

The precaution was not out of place. Indeed, he discovered a few persons in the apartments. Just a few. But these were people.

"Leave? No way!" a man whom he had found at his desk emphatically declared.

"But, you must understand, it is dangerous in the city. Besides, there is a directive from the party gorkom," Chetkov tried to reason with him.

"Never mind! I am working on a new story 'Light of the AES'. When I have finished it, then I will be at your service...."

With great difficulty Aleksandr Nikolayevich nonetheless managed to persuade the "fanatical writer" (as he called him to himself) to get ready and leave the city.

And, carrying out party gorkom assignments, Chetkov had to drive into Pripyat on several further occasions. The communist gave no thought to the possible consequences for himself personally. Then followed a trip to Moscow.

He was received in the capital by Fleet Adm G.M. Yegorov, chairman of the USSR DOSAAF Central Committee. Georgiy Mikhaylovich inquired after Chetkov's state of health and asked what assistance the DOSAAF gorkom required.

"Convey to your colleagues and all people of Chernobyl that they will be given the utmost assistance, along defense society lines included," the fleet admiral assured him.

...It is now difficult to restore in chronological sequence how events developed in Chernobyl, which is 18 km from Pripyat. Naturally, people learned about the accident here somewhat later, but acted no less decisively and coolly. And when they received the request for assistance, they responded willingly.

"Among the tens of thousands of tons of earth which the airmen dropped on the damaged reactor, approximately 5,000 sacks had been filled by their own hands by workers of the DOSAAF raykom and sports-technical club," V. Mernenko, second secretary of the Chernobylskiy Raykom, said. "They toiled day and night. On weekdays and holidays. An example in this difficult work was set by Eng Anna Timoshenko, acting chief of the sports-technical club. Industrial training experts Pirozhenko, Navalnyy and Dudenko and chief accountant Yefimenko were not a step behind her. Generally," Mernenko summed up, "we had a chance at this difficult time to convince ourselves yet again that the wards of the defense society are capable, when needed, of working as at the front."

That says a lot: as at the front.

A difficult assignment fell to the lot of trainer-lecturer V. Karachun. Together with Sr Lt I. Kindrik, representative of the oblast internal affairs administration, he received the assignment of collecting and mustering in Chernobyl all the existing weapons in the rayon. They spent whole days driving around the roads, making the rounds of the inhabited localities....

Here in the rayon, on which the attention of virtually the whole world is now focused, many flattering words may be heard about pilot Aleksandr Khrapov, a graduate of the DOSAAF Kaluga Aviation-Engineering School. One local paper described how at extremely low altitudes he repeatedly approached the fourth unit to conduct radiac reconnaissance and that gratitude had been expressed to him for this by Academician Ye. Velikhov.

Radiac reconnaissance was conducted not only from the air but from ground transport also. And before the special vehicles had arrived, Leonid Rayenok, driving training expert of the DOSAAF Chernobyl Sports-Technical Club, took the radiation supervisors in his own little Zhiguli to the reactor zone, where the necessary measurements were made. Was the trip risky? Undoubtedly. Did Leonid know? Yes. But he managed to get control over himself and not succumb to the feeling of terror.

"I took the wheel," he said, "because it was necessary to ensure the safety of other people."

The actions of A. Khrapov and L. Rayenok and S. Umanets, chairman of the DOSAAF Chernobylskiy Raykom, who, ensuring the evacuation of the population, was one of the last to leave Chernobyl, are akin to an exploit.

#### Working as at the Front

The portraits of N. Gnilitzkaya, intelligence officer of the 383d Miners Division, machinegunner N. Onilova, airman A. Molodchiy and other wards of the Society for Assistance to the Defense and Aviation-Chemical Construction of the USSR, whose martial exploits were commended by the Gold Star of Hero of the Soviet Union, look down at us from the walls. The doors contain the signs "Traffic Rules Class," "Auto Maintenance Lab-Practical Drills Class" and

"Sports-Technical Club Chief," and alongside on a plywood board there is neatly marked out "director of the Chernobyl AES".

The Chernobyl AES Administration is now housed in the raykom and sports-technical club building. Operations are planned here. The staff employees return here after they have performed their difficult assignments to map out further actions.

However, on this occasion Chernobyl AES Director E. Pozdyshev received us in the immediate vicinity of the fourth reactor. From where we were to the scene of the immediate accident was no more than 300 meters. In army language, it was the forward command post. And the director was there because a very difficult and crucial assignment was being performed. Information had just been received by radio from V. Nesterov, deputy chief of the shift:

"Radiation level.... The instruments are working normally."

And a few minutes later there followed:

"I have reached the eighth turbine."

Time passed agonizingly slowly. One had the impression that the minute hand was stuck fast to the dial. But then the familiar voice was heard once again:

"I have finished draining the oil from the turbine...."

No less crucial an assignment was being performed together with his subordinates at this time by section chief V. Pryanichnikov. He was installing transmitters, which provided exhaustive information on the behavior of the reactor. An added complication was that the operation of these instruments had been preprogrammed for a long period of time. They will be giving evidence even after the burial of the damaged fourth reactor has been completed.

After these reports the tension eased somewhat and, availing ourselves of the short break in operations, we chatted with the director.

"Little more than a month has elapsed," Erik Nikolayevich said, "since the accident, which sounded an alarm to the whole world. People of the whole world were witnesses to Soviet people's unprecedented heroism and their self-sacrifice for the sake, I dare use this word, of life itself on our planet. Whatever conclusion may be drawn: the main danger at the present stage has been removed. We have entered, so to speak, a new period in the work to eliminate the consequences of what happened at the AES. Heroism and even fervor alone are not now enough. What are needed are carefully considered decisions and lengthy painstaking work on their implementation. An added difficulty is that in doing away with the visible consequences of the accident we are daily, hourly and even, if you will, by the second dealing with an invisible enemy. Only vigilance and the highest organization and discipline can protect us against unnecessary losses."

E. Pozdyshev has in his time installed and launched more than a dozen nuclear reactors. He has covered all stages. He has grown from an ordinary operator to the director of one of the country's biggest AES. Naturally, each word of such a specialist is particularly weighty and convincing.

"Erik Nikolayevich, your staff is housed in the DOSAAF sports-technical club building...."

"Yes, very convenient premises. Thanks to the defense society. And not only for the building. The biggest thanks to the people who work in its ranks. How much noble enthusiasm they have displayed, fighting together with everyone the consequences of the disaster! In addition, I know that Anna Sergeyevna Timoshenko, deputy chief of the sports-technical club (simply a heroic woman), Kitsup, chief of the collective radio station, Rudchenko, industrial training expert, Rebrik, instructor for technical and paramilitary types of sport, and other activists of the patriotic society have been here several times, exposing themselves to a certain risk, to provide for the social life of the AES workers in your premises. They have cleared away bulky equipment, freed passages, in a word, done everything to improve the conditions of work and recreation of those battling day and night to remove the consequences of the accident.

"We count a good deal on the enthusiasm and efforts of these people. The day is not that far off, I believe, when many of the most serious facts of today will be spoken of as something which occurred in the past."

Chernobyl's DOSAAF members hope very much for this also. As yet they are located in the rayon center of Borodyanka. We can testify that they are displaying neither depression nor confusion. Having relocated, these heroic people are full of the desire to perform the assignments confronting them pertaining to the training of specialists for the national economy and the armed forces and the further development of technical and paramilitary types of sport. Here are convincing facts testifying to this. On 27 May even the Chernobyl'skiy Rayon newspaper PRAPOR PEREMOGI, published in Borodyanka, announced: "The DOSAAF Chernobyl Sports-Technical Club is accepting applications for category A, B, S and E means of transport driver courses based at the DOSAAF Borodyanskiy Raykom and is also continuing to train the groups which were recruited in Chernobyl. For information write to the Administration, 290 ulitsa Lenina, Borodyanka Urban-Type Community."

We attended a party meeting of the Chernobyl'skiy Raykom and DOSAAF Sports-Technical Club. Its agenda read: "Results of the evacuation and tasks for the new period". It made an objective evaluation of the actions of each communist and each raykom and sports-technical club officer. Ways to improve (improve, note) all defense-mass and military-patriotic work were mapped out.

And the day before Borodyanka had been visited by Avn Col Gen A. Korotchenko, chairman of the Ukrainian DOSAAF Central Committee. At the meeting with the DOSAAF members he said:

"We now need to work as at the front. We know that your everyday life is not yet in order and that much is lacking. But in the next few days the USSR DOSAAF Central Committee and the republic DOSAAF Central Committee will be assisting you."

Truly, a few days later bedding, waterproof coats and running shoes arrived in Borodyanka. But the people of Chernobyl were even more pleased when four trucks and three passenger automobiles were put at their disposal.

Lecturer V. Kovchan, secretary of the party organization, had come to an arrangement with the agricultural chemical organization and the rayon transport enterprise concerning the training of drivers category E and D.

The DOSAAF raykom's work continues.

...Vigilance and discipline. They are sensed throughout the 30-km zone. "Roadside Exit Forbidden" signs are everywhere. And this rule is observed unswervingly. Everyone understands that driving on open ground raises dust, and this must not happen. And, in addition, however busy the route and whatever the important freight being carried on it, the sprinkler vehicles are accorded preference. They are decontaminating the asphalt bed with a special mixture.

The radiation supervisors are performing their work vigilantly also. At the slightest pretext the vehicle is stopped for washing.

On duty on this occasion at the command post, which is located approximately 2 km from the reactor, were graduates Yuriy Donskikh of the DOSAAF Ramenskaya Motor School and driver first class Ivan Zelenskiy of the Voroshilovgrad Motor School. Yura worked prior to callup at an instrument-making plant, Ivan, at the Krasnodon Transport Enterprise. Both were excellent workers. And now, according to the testimony of the commander, they are going about their business conscientiously. Having soaked our vehicle in a special solution, they washed it with a hard jet of water. Rapidly and precisely, as trained.

"You can go," Yuriy Donskikh told us, "bon voyage".

"Thanks, boys."

And once again the black ribbon of road stretches out beneath the vehicle, which is traveling at top speed. At the wheel is the same Leonid Rayenok, driver training expert, who in this sector knows every turn. A valiant man, he literally asked to come with us once again to Pripyat, to the reactor.

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## MILITARY SUPPORT

### ACTIONS BY MILITARY TO CONTAIN FOURTH POWER UNIT

Moscow KRASNAYA ZVEZDA in Russian 9 Dec 86 p 2

[Article by Major General N. Tarakanov, candidate of technical sciences: "Seconds of the Exploit"; first two paragraphs are KRASNAYA ZVEZDA introduction]

[Text] As is known, another important step has been taken at the Chernobyl AES to clean up following the accident: burial of the fourth power unit has been completed. It is now reliably sealed and being constantly monitored, and it will be used for scientific-methodological purposes. Work continues at the station to restore the third unit, decontaminate the surrounding territory and remove the radioactive "trash."

At the request of our readers we publish notes on the events preceding the sealing of the sarcophagus. They demanded special courage and selflessness from people.

Work to seal the damaged fourth power unit was close to completion. In 12 days the sarcophagus (this graphic word has become commonplace for everyone) had to be covered with large-diameter metal pipes. The task, already by no means simple in and of itself, was complicated by the fact that tons of highly radioactive material ejected at the moment of the accident were lying on the roofs of the buildings and on the pipeline areas. Whatever happened this material had to be thrown into the "maw" of the destroyed reactor and imprisoned beneath the roof. If this were not done, removal of the material to safe places would take months.

But how to approach zones where the radiation levels were still dangerous to life? Attempts to use hydraulic excavators and other mechanical devices had been unsuccessful. In areas of high radiation the robots had malfunctioned. Moreover, the places where the radioactive products had been ejected were close to the ventilation ducting and the pipeline area was difficult of access: the height of the buildings varied between 71 and 140 meters. In short, without people's active involvement the task could not be tackled. This was the conclusion reached by the specialists, and the deputy chief engineer for construction, Ye. Akimov, supported them. Yevgeniy Mikhaylovich's son Igor was working alongside him. He was a spotter on the

helicopter treating the roofs of the first and third power units with a dust-suppressing solution.

Later, at a meeting of the government commission, where all sorts of possible variants were discussed for decontaminating the buildings adjacent to the destroyed installation, those present also concluded that the work would have to be done manually, using hand-held mechanical devices. I was at that meeting and I saw how reluctantly this decision was reached. But there was no alternative.

Then the work was assigned to me and to the deputy chief engineer at the AES, Yu. Samoylenko. I had known Yuriy Nikolayevich for some time, way back to August when we started to organize the work to decontaminate the first and second power units. I experienced a favorable spiritual disposition toward this bold, innovative and skillful specialist. Samoylenko and I exchanged glances and I read it in his eyes: this could be the most difficult thing yet.

In response to a question from the chairman of the government commission as to how we intended to start, I answered briefly: draw up a plan for the entire operation, conduct an experiment and select volunteers from the military units and formations.

During the evening of the same day I visited one of the formations. I took counsel with the commander, the political information worker and the specialists, and asked them to select five volunteers for the experiment the next day. There were many who wanted to volunteer, so this presented no difficulties.

On 17 September the helicopter took me to the site where the experiment was to be conducted. We had decided to start at area N; in our detailed plan all dangerous areas of work had been letter coded. A special role in the experiment was assigned to candidate of medical science Lieutenant Colonel of Medical Services A. Saleyev. It was he who would personally check whether or not it was possible to work in the danger zone. Naturally, all precautionary steps were taken. Saleyev was to work in specially reinforced protective gear. In addition, he carried with him about a dozen sensors and dosimeters. The route of his movements was carefully calculated. He had to move out into the area, look around, throw five or six shovelful of the radioactive graphite into the ruined reactor and then return. Lieutenant Colonel of Medical Services Saleyev completed this program in 1 minute 13 seconds. We followed his actions with bated breath. We: that is, Yu. Samoylenko, officer A. Kuznetsov and specialists A. Yurchenko and V. Shein.

As soon as Saleyev had returned everyone's attention was focused on the dosimeter readings. In little over a minute the officer had received a radiation dose of 3.6 roentgens. A lot! Nevertheless, work on area N was possible: as the radioactive material was thrown into the "maw" of the reactor the situation would improve. We reported our findings to the members of the government commission. The commission reviewed and approved the instructions we had drawn up for the officers, sergeants and men who had expressed a wish to solve this dangerous task.



From 18 September the volunteers started training on a full-scale mock-up simulating exactly the situation in zone N. At the same time a command point was set up at the 61-meter mark. Remote monitors were set up there to scan the zone and the reactor ruins. A large-scale photograph of the zone and the main ventilation duct and all adjacent areas was also set up, along with a schematic of the route to be used to approach the work site and a full-scale mock-up. Our command point was next to the ruined reactor but on the other side of the wall.

At the 51-meter mark a work site was set up where protective clothing was donned (it weighed more than 20 kilograms) and personal dosimeters were handed out and tasks assigned and instructions given. It took 30 to 40 minutes for the men to prepare for their work. The work itself lasted one minute.

In the afternoon of 19 September the first group of soliders led by Major V. Biba arrived. I told them not only about the extraordinary importance of the work to be done but also the danger, and about the results of the experiment conducted the day before. I asked that anyone who felt unwell or not very good to stand down. No one did. This is the way it was every day, throughout the entire 12 days.

Let me give you the names of the first group of five who started the complex work in zone N. They were: detachment commander officer V. Biba, detachment sergeant V. Konareykin, and privates N. Dudin, S. Novozhilov and V. Shanin.

At the command "Advance" a stopwatch was started. The soldiers moved into the zone and with rakes and scapers and shovels started to throw the pieces of graphite and fragments of fuel rods (the heating elements) into the ruins of the reactor.

We watched carefully on the remote monitor. The minute seemed to last a very long time. Then the siren sounded. Everyone moved up to the 71-meter mark to congratulate the battalion commander and his subordinates. The dosimeters showed that the work could be continued. The next group was sent into the zone. By the end of the day more than three tons of radioactive products had been moved.

The next day we amended the original plans taking into account the experience that had been gained. The work was now done by groups of 6 to 10 men. By evening almost 7 tons of graphite had been removed from zone N. The record was held by the group of soldiers commanded by political worker Major A. Filipov, which moved 1,490 kilograms of the dangerous material.

Lieutenant S. Muzykin, Junior Sergeant A. Ivanov, privates Ye. Krivtsov and V. Belokopytov... These are the names of the chemical troops who particularly distinguished themselves on 22 September. They and many of their fellow servicemen had each thrown more than 50 kilograms of graphite into the ruins of the reactor. A day later zone N was completely clear. We felt a sense of joy at our first victory. Next came the first and second pipeline areas, zone M, where, following the accident, dozens of tons of graphite, fuel rods and entire assemblies from the reactor had fallen at the base of the pipe and presented a special danger.

The new task was more difficult than the first: the height of the climb was greater and the movement route was more complicated: it was necessary to move through a real labyrinth. The soldiers climbed up on a fire ladder, moved through a passage cleared by explosives to area L and in a few short bounds reached the flooring of zone M to climb quickly up to the first pipeline area on a metal ladder. Here, in addition to bravery and courage, strength and stamina were needed.

Radiation monitors A. Yurchenko, A. Starodumov and G. Dimitrov from "Soyuzatomenergo" determined that this time the work could be continued only for 40 or 50 seconds. The first 15 shifts worked, and we realized that productivity was extremely low and that the work principle had to be changed. We decided first to find the most dangerous products and remove them. We came across an entire assembly with nuclear fuel, all weighing 350 kilograms. With only 40 seconds at their disposal the first groups could do nothing with it. The catching devices and special hooks were no use. We ordered a dozen lead strips which were attached at eight points on this assembly. Now it was possible to get a firm grip on it. The group was led by a reserve officer, the chief engineer at one of the enterprises in Sverdlovsk, V. Starodumov. Via the remote monitor instructions were passed to each soldier explaining where the lead ties should be "tied" and how he should grasp it and where to apply effort.

A group of soliders from a civil defense unit -- Sergeant A. Starovybornyy, Cpl N. Zuyev, privates O. Abdulayev, V. Voykov, A. Rybakov, V. Semin, G. Semenko and I. Shcherbatov, led by Starodumov -- went into action. Those at the command point left the remote monitor and moved forward to a gap in the wall to see the results of the work with their own eyes. Everything went as planned. After several seconds the assembly with the nuclear fuel, which was creating a special radiation field, crashed down noisily into the ruins of the reactor. The group was greeted as heroes. A 5-minute celebration took place.

The radiation level immediately fell so much that it became possible to work for a minute-and-a-half. Things went more quickly. At our request they fabricated additional devices: grasping devices with 3-meter extension handles, L-shaped tongs with double handles for two men, special hooks, scrapers, litters with blades... All this facilitated and expedited the work and reduced the radiation dose. The struggle against the insidious and very dangerous enemy at the first pipeline area lasted just under than 3 days. But the main mass of the graphite and other ejected material was on area M, at the base of the ventilation duct. Work there was easier: it was lower, the routes for movement were simpler. But as before the duration of a shift remained from 1 to 1.5 minutes.

The subordinates of officer Ye. Dubinin, soldiers from other formations, chemical troops, civil defense people and the engineers labored for 4 days on area M. About nine tons of ejected products, including three dozen smashed assemblies with nuclear fuel, were hurled into the "maw" of the fourth reactor.

As I watched the actions of the officers, sergeants and enlisted men and the AES specialists I involuntarily thought of the last war. I saw the Great Patriotic War through the eyes of a child. Our village of Gremyachye in Voronezh Oblast on the Don was heavily hit. People died right in front of my eyes. I remember my older brothers Petr and Aleksandr pulling the documents of a dead pilot out of one of our bombers that had crashed in a meadow by the river. My father and older brother Ivan returned as invalids from the front. My brother died soon after.

That generation--the generation of victors in the most difficult and bloody of wars--was for me surrounded by an aura of courage. Those people--our fathers and grandfathers and older brothers--could not be broken spiritually. And in our work to clean up the consequences of the accident at the Chernobyl AES I became convinced that our generation too--the younger generation--and our successors cannot be broken spiritually.

I shall always remember 1 October--the final day of our operation. A great deal still remained to be done. Two damaged robots were standing on area M. They had become "imprisoned" in the graphite and fragments. We managed to extricate the robots. Then the hydraulic excavators and the fire hoses went into action. The work was led by V. Golubev, who had come to Chernobyl from the Smolensk AES. You will never see the like of that man's courage and technical skill. At 2030 hours the shift of chemical troops made up of Jnr Sergeant V. Parfenis and privates V. Borisevich, S. Mikheyev and Ya. Tumanis threw the last pieces of graphite and the last fragments of fuel rods into the ruins. Then the siren sounded, longer than usual. Everyone at the command point let out a loud "Hurrah!"

We shook hands all round and removed the panoramic photograph of the work zone and all signed it. Two dozen signatures sealed a firm friendship, the friendship of people representing the people and the army, emissaries from every corner of the motherland.

The next day Lieutenant Colonel A. Sotinov and A. Yurchenko and V. Starodumov climbed up into the ventilation duct to hoist a red flag there. This flag, which was greeted by applause from all who had worked at the station, became a symbol of the latest victory in the cleanup following the accident, a symbol of courage and selflessness.

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## MILITARY SUPPORT

### INTERVIEW WITH COMMANDER OF CHEMICAL TROOPS

Moscow PRAVDA in Russian 25 Dec 86 p 3

[Article by A. Gorokhov, PRAVDA special correspondent: "Zone of Responsibility: Heroes of Chernobyl"; first paragraph is source introduction]

[Text] It was not until now, on the eve of the New Year, that it has been possible to have a thorough, unhurried conversation with Vladimir Karpovich Pikalov at his home in Moscow. The only interruption was the general's granddaughter, third-grader Masha, looking into his den from time to time, asking whether she should bring more tea...

In late April 1986 Colonel General V. K. Pikalov, USSR Minister of Defense chief of chemical troops, was located far from Moscow -- a training assembly that was specified by the combat training plan was in progress.

Late at night, close to midnight on 25 April, the general and his subordinates went to get some rest. They did not yet know, and no one could have foreseen, that at 0312 hours the warning signal would awaken, among others, the chemical defense units of Kiev Military District and a number of other military districts. The task that was assigned to them apparently was completely unexpected and unusual. The first combined detachment of the chemical troops rushed toward Chernobyl, a rayon center 130 kilometers north of Kiev.

In the morning the chief of chemical troops received a call from the General Staff.

"Vladimir Karpovich!", Marshal of the Soviet Union S. F. Akhromeyev said. "There has been an accident in Chernobyl. We assume that it is necessary for you to be there..."

It took five minutes to have the task defined and to receive additional instructions. Two minutes later USSR Minister of Defense S. L. Sokolov authorized him to leave the training assembly. During the next three minutes a mobile detachment was alerted, other necessary commands pertaining to the chemical troops were issued, and a decision was made to fly to Chernobyl. At 1400 hours General Pikalov and the members of the chemical troops operations group that was formed by him walked down the gangway of an AN-26 transport plane onto the tarmac of the Zhulyany airport in Kiev...

At that time several heavy transport aircraft were already carrying on their wings assistance to the Kievans -- the first group of chemical troops, headed by Lieutenant Colonel N. Vybodovskiy. The basic forces of that mobile detachment under the command of Major V. Skachkov were being loaded into trains...

That was the way, or approximately the way, that many people in the military, from privates to generals, began that alarming day, a day that became in the life of each of them a special landmark, a specially marked day.

The documents that I now managed to examine recall, without stretching the imagination, archival combat reports which by now are familiar to the overwhelming majority of readers only from publications dealing with military history. And in essence this was, indeed, combat work. Except that it was under peacetime conditions. It is difficult, if not impossible, today, eight months later, to convey on the newspaper page the very high tension in the zone of the silenced power plant on the eve of the May holidays.

On 2 May members of the Politburo of the CPSU Central Committee arrived at the Chernobyl nuclear power plant. After reports were given by specialists, including Pikalov, decisions were made which defined the strategy for eliminating the consequences of the accident.

Army subdivisions were among the first to arrive in the accident zone. The officers and enlisted men helped to evacuate the population, carried out radiation monitoring, began to carry out very complicated engineering operations, and prepared for wide-scale deactivation. There in Chernobyl, political workers and commanders frankly admitted to me that the lack of experience in operating under conditions of radiation contamination by the very unusual isotope composition and the emergency situation itself forced them to change the tempo of the forms and methods of their work, both party-political and professional. It was necessary in an immediately time-responsive manner, sometimes instantaneously, to seek nonstandard answers to just as nonstandard questions, when certain principles stated in the regulatory documents failed to conform to the situation that was developing. It was necessary not only to "remove" the natural inner tension in the personnel, but also not to downgrade the level of danger, not to allow one's vigilance to become dull.

"That's true," the general agrees. It's necessary to instill confidence in people so that they will not be afraid, and also the firm conviction that they can resolve the task, but also to prevent any unjustified losses. The main thing was to be able to get control of the situation, especially at the fourth unit and the territory adjacent to it, literally on every square meter, to recommend different alternatives for covering the reactor, and to guarantee the safety of the population..."

The subdivisions of the chemical defense units were still being deployed in the designated regions, and the platoons of Senior Lieutenants V. Blokhin and A. Toporkov had already set out to carry out radiation monitoring on the territory of the nuclear power plant. It seemed to be an ordinary job. However, the contamination of the terrain was not conventional, as it is

during exercises. No, it was completely real--with radiation levels that at that time were not even known tentatively.

By the end of the day on 26 April, General Pikalov already had his "corner" in the building of the party's Pripyat gorkom: he had been assigned a desk and a communications line had been brought in (later on, his group would move to Chernobyl). Information began coming in from the radiation monitoring scouts. That night no one closed his eyes, and at 0800 hours on 27 April representatives of the chemical troops, together with specialists on nuclear energy, were already reporting the situation to a governmental commission: the situation has sharply worsened...

Everyone knows what happened then: at 1000 hours, the decision to evacuate the inhabitants of Pripyat; at 1100 hours, a meeting of the party-economic aktiv; at 1400 hours, the motor buses were provided; at 1445 hours, the last city dwellers left Pripyat... Witnesses stay that the general was the very picture of coolheadedness, and of giving his utmost. The general staff asked what was needed. Pikalov said to send to the accident area such and such units. A telephone call to Moscow to one of the leading specialists on protection against mass-destruction weapons, USSR Academy of Sciences Corresponding Member, Hero of Socialist Labor A. Kuntsevich: please get the nerve-center set up -- there's a lot of work to do! Out at the scene: employ remote-control means for collecting information, make broad use of robots, expand the deactivation... Did he ever sit down at the scene?

"Of course not," Vladimir Karpovich says. "Late at night on 26-27 April I drove around the power plant for the first time in an ordinary Volga. It was necessary to get an idea of the situation on the run... I realized that if, at that moment, the radioactivity would be released into the atmosphere, we would have to do some fast jumping. The fire had already been extinguished, and there was a deathlike stillness all around..."

A shadow flickers across the face of the general, a physically strong, strong-willed, and, in general, a not very sentimental person. For a moment he remains silent. And that is the situation that will be repeated frequently during the entire conversation. And I think to myself, "That which he has lived through in Chernobyl will never leave him very easily."

"The air space above the fourth unit was glowing," Pikalov continues. "The reason for this diabolical glow was in principle comprehensible to me... What did I have to do then? In a BRDM [combat reconnaissance vehicle] I set out for the reactor..."

This is how the situation developed: at a safe place the general told his enlisted driver to get out of the vehicle and the general himself got behind the wheel of the BRDM. He drove up to the gate and, to use military language, "made a passage," that is, he simply rammed it. The combat vehicle, which had been stuffed full of instruments, stopped near the wrecked area.

Yes, the experience of Chernobyl convincingly demonstrated the ability of many specialists in various departments, under conditions of a critical shortage of time, to make efficient and, it must be especially emphasized, bold decisions

and to carry them out with astonishing speed. I am convinced that in this situation Pikalov was also aided by his front-line experience.

In June 1941 he was not yet 17 years of age. With nine grades of middle school behind him at School No. 7 at the Minutka station, which is near Kislovodsk, Volodya Pikalov, the son of an active participant in the October Revolution and the civil war, with ten of his classmates asked if he could go into the army. However, people that young were not sent to the front, and so Pikalov found himself in the 1st Rostov Artillery School, from which he graduated, after taking an accelerated course, in February 1942. Bondarev's "Goryachiy sneg" [Blazing Snow] is about precisely the same kind of artillery-gunner lieutenants that Pikalov was.

But his father also was not sitting at home... Vladimir Karpovich extends his arm, passing me a yellowed photograph: sad-faced mother, Mariya Maksimovna, and father Karp Ivanovich, and Vladimir's only brother, his older brother Georgiy. The men are wearing new uniforms that they have apparently just received. July 1941. Before the year is over, Zhora will have perished near Kharkov, and his father, seriously wounded in the same fierce May combat engagements, will be taken prisoner. Karp Ivanovich escaped in 1944, fled from Buchenwald, was a partisan on the territory of Czechoslovakia, and was awarded the rank of honorary citizen of Turnov (there are astonishing coincidences in life, but this is a fact: many years later, the younger Pikalov will also become an honorary citizen of the same city). Karp Ivanovich went into the reserve with the rank of captain and during peacetime he received two Orders of the Red Star that had taken a lifetime to "catch up" with him.

For Vladimir Pikalov, an intelligence officer in the 331st Guards Artillery Regiment of the VVK [Supreme High Command] reserve, combat service ended in Germany, when, on the very eve of Victory, a piece of enemy metal suddenly put him on a hospital bed (he had "gotten by" with his first two wounds -- he had remained on active duty both times). In the autumn of the year of victory, the combat artilleryman became a student at the Military Academy of Chemical Defense.

For most readers, the ideas concerning the chemical troops, it would seem, are fairly relative. I shall not conceal the fact that the press also does not particularly favor those troops that belong in the category of "special" ones, whose work, perhaps, is completely devoid of outward glamour, but is replete with profound inner content, if only that which is expressed in the word "defense." Even an abbreviated list of the tasks resolved by the chemical troops looks impressive: the determination of the location of nuclear explosions; dosimetric monitoring; radiation and chemical reconnaissance; deactivation, degasification, and disinfection of combat equipment, uniforms, and other material means; degasification and deactivation of the terrain... That is, these troops have been called upon to protect the military contingents and the civilian population from radioactive, chemical, and biological danger, and to defend against mass-destruction weapons.

"I will also add something else," Vladimir Karpovich interposes. "The appearance of a superaccurate 'conventional' weapon in the hands of the

assumed enemy introduces an additional nuance into the nature of the possible armed struggle. The use of such a weapon can serve as a catalyst, an impetus to the enemy's use of nuclear weapons. Are you asking about the SDI? In my opinion, those who consider the SDI to be some kind of impenetrable shield are in the captivity of dangerous illusions..."

These are only brief remarks about the "zone of responsibility" of the chemical troops which, for more than 17 years, have been headed by General Pikalov.

I admitted that the May article in PRAVDA concerning the Soviet Army fighting men who had participated in the operations to eliminate the consequences of the accident at the Chernobyl nuclear power plant had been preceded by advice and recommendations to stay out of the chemical defense kitchen. What's past is past, but there does not remain in my notebook a single -- that's right, not a single -- line about Pikalov's operations group, although I spent half a day there. That, for example, may be the reason why I cannot remember the name of the colonel who had been removed from working with the "burial grounds," looking for radioactive fragments, because he had received a radiation dosage in excess of the norm. But I do remember the officer's grieved face: no, he was not sad because he had received a rather large dosage, but because he would not be able to complete personally the job that had been assigned to him.

"I don't know, but it may be that your advisors were right," the general says, "but we didn't have much time for discussions then, during those hot May days..."

I recall that specialists kept coming into the group room, reporting, giving advice, arguing, getting instructions, and then leaving to execute them. There I found general designer M. Tishchenko, the head of the famous helicopter KB [design bureau]. And when, 24 hours later, a helicopter with various pieces of critically needed equipment landed on the field that had been turned into a temporary airfield, I thought that this had to be the result of that brief meeting between the aviator and the chief of chemical troops. In a word, I did not succeed in talking to Pikalov at that time. Soon he would go to Moscow to give his next report to the party and government leadership.

But his subordinates continued the indefatigable work in the area of the damaged power plant. Whom should I name? Which ones should I mention? I ought to mention all of them, but there isn't enough space. I will say only that the chemical defense units to which officers V. Khramkov and V. Luchitskiy are assigned were awarded the USSR minister of defense pennant, "For Bravery and Military Valor." And there was no need to be a soothsayer to predict that General Pikalov would soon be returning to Chernobyl.

It has been said correctly that bravery is worth more than an ingot of gold. A person cannot live or work simply for himself, and bravery also cannot exist by itself, off to one side, as it were. Bravery has different "faces." They include a person's ability, for a prolonged period of time, to manifest steadfastly his self-control and selflessness. They include the ability to



concentrate all one's forces at the necessary moment. They include the very great patriotism of Soviet citizens, their devotion to and their love of their Motherland--and also their very high professional skill. Those are the components of bravery, that moral basis for an exploit.

During the conversation I remembered the poet's lines:

The Russian word "feat"  
Is from the word "to move."  
It is moving the weak persons to the target.  
Moving the laggards to bravery.  
Arousing those who have fallen,  
and those who are tired,  
Moving and  
Igniting those whose fire has gone out.

Those words characterize rather completely the meaning of the life of the hero general, the party member with almost 40 years of longevity, and his zone of responsibility.

Outside the window, twilight was falling, but the end of the conversation was nowhere in sight. Masha came into the room and told the general something about a suitcase: it turned out that V. K. Pikalov would be leaving that evening, but out of politeness he had not mentioned that fact.

Of course I couldn't restrain myself from asking, "Where is your grandfather going, Masha?"

"What do you mean, where?", replied the girl who, like thousands of children her age, would remember for the rest of their life the name of the previously unknown populated place, "to Chernobyl..."

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## MILITARY SUPPORT

### FIREFIGHTER RETURNS TO DUTY

Moscow IZVESTIYA in Russian 15 Jan 87 p 6

[Article by G. Alimov: "We're Going Back to the Construction Site"]

[Text] Lieutenant Colonel Leonid Petrovich Telyatnikov is one of those who were decorated. IZVESTIYA readers probably remember him quite well. This paper went into great detail in reporting the dramatic night of 26 April, and the heroic deeds of the firefighters who threw themselves at the fire enveloping the 4th block building of the Chernobyl AES. Lieutenant Colonel L. Telyatnikov (still a major at the time) was in charge of the first rank of firefighters that night...Our correspondent met with Hero of Soviet Labor Leonid Petrovich Telyatnikov just after the firefighter received the Fatherland's highest decoration.

Alimov: Please accept our congratulations. IZVESTIYA's readers have been avidly keeping up with you and your friends and comrades.

Telyatnikov: Many thanks to them. I'm still getting letters from them. Thank you all! That's not the sort of thing one forgets; it stays with you all your life.

Alimov: You've changed, Leonid Petrovich. You've recovered.

Telyatnikov: Whatever happens, happens, and the doctors deserve all the credit. But I think being away from my work weakened me. I needed to get back into it; I felt a little unsettled. I'm just glad that they put down in my medical report that I'm once again totally fit for duty. So I finally returned to work on 9 January, after a long time away.

Alimov: What is your new position?

Telyatnikov: I'm chief of the fire-fighting laboratory of the Kiev Oblast's Fire Safety Administration, which is part of the Internal Affairs Administration. The work is new to me in general, and I'm still getting used to it.

Alimov: How are your Chernobyl colleagues feeling?

Telyatnikov: Almost all the boys from our fire-fighting section are in Kiev. Not all of them are working yet: some are on leave and some are still under observation in the hospital. They'll have to start work soon. I'm glad that they're all doing well. I want to say proudly that they all stayed true to their profession.

Alimov: I heard that your family will soon get an apartment in Kiev.

Telyatnikov: Yes, that's right. We want to start living a normal life. Basically, that means a new life in a new place.

Alimov: How are your sons? How is their schoolwork going?

Telyatnikov: Oleg is in the sixth form and Misha's in the fourth. Naturally, I'd like for them to do better in their studies. But my wife and I know that they've had a temporary setback, and that everything will improve. They've had a difficult year.

Alimov: If you were to be asked, which of the lessons of Chernobyl would you say stands out in particular?

Telyatnikov: As you know, among other things, Chernobyl revealed the flagrant practice of the flippant attitude to the rules and regulations which are in one way or another connected to safety, and our habit of depending on "maybe" so much of the time. It is hardly heroic to either appeal to the rules too freely, or to interpret them too freely. We need to remember that there are Instructions and then there are instructions. But order requires that we treat them with respect.

Alimov: What are your thoughts right now?

Telyatnikov: I have a great deal of bitterness mixed in with my feelings of gladness: Vladimir Pravik and Viktor Kibenok could both have been made Hero of the Soviet Union along with me today. I'll never get used to the loss of my comrades.

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## CLEAN-UP OPERATIONS

### REACTOR ENCASED IN CONCRETE

Moscow TRUD in Russian 3 Oct 86 p 1

[Article by TRUD correspondent Stanislav Prokopchuk under the rubric "Chernobyl AES--Repercussions": "First Power Unit on Line"]

[Text] Chernobyl Special Zone--These are difficult hours at the fourth unit, where work is underway to cover the "tomb" caging the atomic process that went out of control. There is a considerable amount of machinery, particularly cement mixers from the KamAZ [Kamskiy Vehicle Plant], at the foot of the huge staggered-tier wall that has sealed off the main rupture in the damaged unit forever. One after the other, at strictly set intervals, they deliver gray slurry to the concrete pumps that then pump it up to the highest levels of the "tomb." Since the concrete is being pumped without stopping, drivers must insure that there is a steady supply. Moreover, simply pumping 40-55 meters in the air is not enough; the application of the concrete must be coordinated with the efforts of the SU-605 construction personnel. They have a very difficult job to do today, as they have had until now.

The main difficulty is that even at a height equivalent to that of a 20-story building, the background radiation level is still dangerous. This means, of course, that people cannot go up there, and that machines will have to do the job. The key machine in this case is a crane equipped with radio, video cameras, and other special instruments. The crane will be capable of lifting heavy metal structural elements to the necessary height. In addition to lifting these structures, the crane will have to release them over the still toxic crater left by the fourth unit. The solution to the problem of how to do this was an automatic sling release device.

The command "Raise the pipe" was issued, and the 26-ton object floated smoothly skyward, hung for a moment in the air, and then was placed carefully in position on a support beam on the roof of the "tomb." Valeriy Ivanyakin, the crane operator, whom I had already met, was performing with jeweler-like precision from inside his shielded cab. That, at least, was how No 605 Construction Administration chief engineer Lev Bocharov referred to the work of Ivanyakin and, indeed, everyone working at the epicenter of the special zone, adding, "They are all true patriots." At the same time, technicians Petr Kim and Vladimir Rudakov were calm and professional in stacking the pipes and building the other protective structures for the "tomb."

Then the final moment came, and, like a roofing tile, the last pipe was laid on the roof. At last, the damaged fourth reactor was walled in! The massive containment structure was truly impressive. To illustrate this, I need only mention that the walls on the two lowest tiers of the "tomb" were several dozen meters thick.

Bocharov said at this point: "The most important part of the job is done. But we still have to seal the seams in the roof and put metal structures over the separator sections. In other words, we are not out of the forest yet."

The other tasks on the agenda include decontaminating the production areas of the AES, reviving the agricultural areas on certain parts of the 30-kilometer zone, and finishing construction of the Zelenyy Mys workers' settlement and its necessary public and community services. To a great extent, it will be easier to solve these and many other no less important problems now that the campaign against the rampaging atom has been concluded successfully. This victory will permit life to be breathed into the plant once again. The first unit has already resumed supplying power to the unified system, an important event which indicates that the Chernobyl AES can once again supply power at industrial levels.

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## CLEAN-UP OPERATIONS

### RECOVERY OPERATIONS REPORTED

Moscow IZVESTIYA in Russian 5 Oct 86 p 6

[Article by IZVESTIYA special correspondents N. Baklanov and A. Pralnikov:  
"Autumn at the Pripyat Shore"]

[Text] Chernobyl--For 6 months cleanup operations have been underway on an unprecedented scale and at an exceptional pace at and around the Chernobyl AES. Thousands of persons have taken part in the cleanup, including firemen, construction workers, miners, scientists, pilots, policemen, military personnel, and personnel from AES's located thousands of kilometers from the Pripyat area.

Right here, at this site, people were making critical decisions--decisions on which the safety and lives of many people sometimes depended. After it was finished, workers and engineers would sometimes look back at the job they had done and be amazed at what they had accomplished. Much of it had seemed technically impossible, but they had done it anyway.

A thick protective slab has been created beneath the damaged reactor. And the radioactive ruins of the fourth unit have been shut off by the walls of a tomb, the roof of which is 60 meters high and made up of metal structures weighing hundreds of tons. The result of all this is that the fourth unit at the Chernobyl AES, whose name has become associated in our consciousness with misfortune or tragedy, has now made a trial run, with a similar trial for the second unit on the agenda.

The plant is coming back to life.

Five months ago, when we first drove up to the building in whose underground bunker the special cleanup staff was stationed, things looked a lot different than they do now. In front of the building you could see rows of fire engines and concrete pumps, which were pumping their mixture beneath the reactor. Because there was not enough time to put them in their place, a heap of plastic boots lay near the entryway. Another job for which there had not been enough time was keeping the inside rooms and passageways tidy. I might add that you could only get to the building in the first place in an armored personnel carrier, whose metal construction cut the radiation level in half.

But nowadays the men working a shift are transported to work in buses which, although shielded, are perfectly clean and have a less military appearance. The area in front of the entrance has been paved over with concrete and, like the inside staircases and corridors, the walls have been covered with an easy-to-wash plastic material. The hallways have been repainted and the lead sheets that served as protective "shutters" have been taken down.

But the most important change is that the fourth unit has ceased to be so physically or psychologically ominous. One can go right up to the walls of the tomb and look at them without having to worry about receiving too high a dose of radiation.

The two photographs on this page show the damaged unit in May and in October. The ground-level view makes the difference more apparent, but the camera lens is too close to provide a panoramic view of the huge structure. The difference will be even more apparent when the area in front of the tomb is covered with green grass; and when the blue pines evacuated during the decontamination effort are returned to the entrance through which the plant personnel pass on their way to their shifts. The pines are a source of special pride for the workers, who want to see them again in their former location.

The tomb is the most graphic and prominent evidence of how much work has been done here. But the ancillary operations were also performed on a large scale. For example, dozens of kilometers of new roads were built, and more than 8,000 homes were constructed for people evacuated from the danger zone.

But the most biggest job, and the most important one as well, was ensuring the safety and health of people.

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## CLEAN-UP OPERATIONS

### CLEANUP EFFORTS HONORED

Kiev PRAVDA UKRAINY in Russian 1 Nov 86 p 3

[RATAU article: "Pre-October Labor Watch"]

[Text] Hoping to be able to trim the deadline for completing the Chernobyl cleanup operations, construction personnel and workers at the AES have put their collective shoulder to the wheel. The extensive program of socialist competition now underway in collectives is helping them accomplish this. The watch [vakhta], in which collectives work toward a common goal, was used as the model for the program. Members of the labor union staff and economic management personnel tallied the final score of the pre-October celebration labor watch. There were 35 collectives in the winner category, each of which was awarded a Ukrsovprof [Ukrainian Council of Labor Unions] commemorative pennant with the inscription "For outstanding selfless efforts to clean up the damage from the Chernobyl AES accident." More than 300 outstanding workers were awarded a letter of gratitude by the presidium of the Ukrsovprof and a bonus.

Member of the Ukrainian Communist Party Central Committee Politburo and chairman of the Ukrainian labor union republic council V.A. Sologub met with the winning construction and AES personnel, gave them honorary awards in the midst of their comrades, and congratulated them on the occasion of the upcoming Great October Revolution holiday. While at the AES, Sologub met with a brigade of construction electricians, who are performing a difficult job at the fourth unit, and visited the operational first unit, where he spoke with operational, repair, engineering, and technical personnel about their working conditions and rest and recovery time. He also spoke with members of the AES labor union committee.

While visiting the vakhta town of Cape Green, Sologub learned about the living conditions of the construction and plant operational personnel, including public food, medical, commercial, and transportation services.

In Chernobyl he met with the government accident cleanup commission, which is headed by USSR Council of Ministers Deputy Chairman B.E. Shcherbin.

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## CLEAN-UP OPERATIONS

### CLEANUP OPERATIONS NEAR COMPLETION

Kiev PRAVDA UKRAINY in Russian 1 Nov 86 p 3

[Article by PRAVDA UKRAINY correspondent A. Sokol: "Approaching the Finish"]

[Text] Kiev Oblast--Once the reactor room was covered, we were justified in saying the reactor was entombed. For all intents and purposes, the heavily damaged reactor was enclosed, and efforts to further seal it using what specialists call hermeticization were begun.

The hermetic sealing of this structure, however, was not easy, since whole open areas and not just cracks had to be sealed. On the side where the staggered-tier wall was built, hermeticization was accomplished fairly rapidly. Structures resembling hockey sticks were used to close the gap between the top of the wall and the bottom of the roof and a solid seal was formed. But there was a large opening on the other side, where an entire room had to be covered. The "hockey sticks" devised for this job certainly deserved the adjective large, and a special heavy beam 70 meters long was needed to accommodate them. Lifting this beam to the necessary height was a relatively easy job for the crane; the hard part was creating supports for such a large object using remote control in a high radiation zone.

The experienced No 605 Construction Management Team encountered many difficult engineering problems, which they worked day in and day out to solve. For example, the problem of how to emplace the monster beam, as they called it, was discussed when the site party committee met to let communists know what they should do to help draw the cleanup effort to a close. The speakers at the meeting stated: "We need to have a meeting of the technical council tonight; we have to solve this problem by morning."

The most knowledgeable specialists in the field were requested to help in solving the problem, and people began arriving in the zone who, despite the briefness of their stay, had a crucial job to do.

The personnel at the site have been working with unflagging energy. The interval between shifts, for example, has been trimmed by having the new shift and the old meet at the work site instead of the bus stop.

Operations to finish the entombment project are underway at full steam.

According to A.G. Petrov, chief engineer of the third industrial region, "Besides building the supports, we are paving the area adjacent to the unit with concrete. Our job will include covering more than 12,000 square meters of surface area with concrete; we have already done 9,000 square meters."

The head of the sixth region, L.Yu. Daniel, told us that his collective is finishing its job of clearing debris left over from construction on the third unit. Among those whose work is selfless and effective is the brigade of Yu.L. Boldyrev, along with his comrades A.N. Borisov, A.P. Shulskiy, and A.E. Medvedev.

The first region collective is successfully completing the work on its area. Among the outstanding workers on the shift are A.I. Ilkov and project supervisors Yu.A. Kotov, A.K. Aslanov, A.S. Verin, A.A. Tsepelev, and P.S. Kostritsa.

Currently, the staggered-tier wall is being painted. The entire cleanup job will be finished only when the final touch, an almost kilometer-long fence surrounding the fourth unit, is completed. Half the fence is already up, and work is continuing on the rest.

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## CLEAN-UP OPERATIONS

### REPORT ON MOSCOW ENGINEERS AT PRIPYAT RIVER

Moscow MOSKOVSKAYA PRAVDA in Russian 5 Nov 86 p 2

[Article by Ye. Shimanko, under rubric "Muscovites in Chernobyl": "Everyone Knew His Maneuver"]

[Text] This material was prepared during those days when operations were completely under way in the area of the Chernobyl nuclear power plant to erect a unique structure -- an antifiltration wall in the ground, 35 meters in depth and 60 centimeters in width. That wall is supposed to protect the Pripyat River reliably against the entry of contaminated ground water.

Late in July 1986, on the initiative of the CPSU MGK [Moscow City Committee] and the Mossovet ispolkom, construction workers from Glavmosinzhstroy arrived in Chernobyl to render assistance to specialists from the Gidrospetsstroy [specialized hydrological construction] All-Union Association. There was a very large number of people wanting to fulfill that difficult assignment. The best of the best were chosen.

Muscovites poured into the detachment of many thousands of construction workers who had arrived in Kiev Oblast from all parts of the country. Together with them, they did everything to accelerate the completion of the operations. The construction of the antifiltration wall in the ground was one of the component parts of the series of operations to bury the damaged unit.

From the very beginning, as soon as the operations of eliminating the consequences of the accident at the fourth unit of the Chernobyl nuclear power plant began, the fulfillment of the water-protection measures was made one of the most important tasks. First, an embankment was made along the river in the area of the power plant. Then operations were carried to guarantee the supplying of water to the city: water mains were laid, hundreds of Artesian wells were drilled, underground water was diverted, and collectors and shower runoffs were created. But, when the first, most urgent measures to protect the environment had been fulfilled, the next thing on the agenda was the construction of long-lasting and stable defensive structures. One of them was the antifiltration wall in the ground, a wall that encircles the station as a reliable ribbon two kilometers long.

The noise of dump trucks, land-moving machinery, and other machinery did not cease, either by day or night. The precise rhythm of three-shift operation remained unbroken.

Carefully, to prevent the top of the ditch from breaking, a grapple on a telescopic boom is lowered into the ditch. The grapple is controlled from a self-propelled unit. Seated at the controls is P. Golenko. He mastered that piece of complicated equipment for the first time right here in Chernobyl. But it is for good reason that excavator operator Petr Golenko is considered an expert back at Trust No. 2 of Mosinzhstroyemkhanizatsiya [Moscow engineering and mechanization construction]. Upon arriving here he, like the rest of his comrades, within the shortest period of time -- just one day -- studied the equipment that was new to him and began to perform independent work. According to the specifications, the machine is supposed to travel no more than five meters in a 24-hour period. But here it traveled a distance that was twice as long.

"The construction of the wall in the ground was carried out by various groups of construction workers that were, sort of, united into one," A. Vasin, chief engineer of SU-29 [Construction Administration No. 29] of Mine Shaft Drilling Operations Trust No. 2 of Mosgornospetsstroy Trust says. He headed the first detachment of people from Glavmosinzhstroy who arrived at Chernobyl. "All the operations were carried out in accordance with a sliding combined schedule. There were no interruptions for lunch or for smoking breaks. During the period when one shift was replacing another, the machine would not be turned off. Instead, the person being replaced would turn over the controls to his counterpart, and the machine would keep moving ahead.

There was a lot of equipment at the site. But neither the fussing around nor the squeezing of one another (which are a usual phenomenon when things are crowded together this way) hindered anyone. Everyone knew his function exactly and executed it precisely. The operations were carried out ahead of schedule. It would have been possible to work even more quickly if there had not been a large number of underground lines, the re-installation of which required taking people away from the basic project and also additional expenditures of time. The people were also hampered by the areas of quicksand that occurred at a 30-meter depth. The latest, most effective methods were used to combat the quicksand areas.

Nevertheless the gain in time was considerable. To a large extent this was promoted by the fact that the mortar assemblies for preparing the bentonite mixture arrived as a complete set with units that had been made completely ready at the plant. The mixture was fed continuously, round the clock, to the place where the operations were being carried out. At one of these assemblies, our hometown boys distinguished themselves, for example, E. Karatin, fitter at SU-69 of Mine Shaft Operations Trust No. 3. Mining foremen M. Galan and I. Karasev demonstrated unusual organizing talent at such time. Nor can one fail to mention the considerable contribution made to the common causes by SU-19 mechanic V. Sidorov. He headed a brigade that dismantled the equipment and then prepared it for deactivation.

Yes, the rhythm of the operations in constructing the wall in the ground, and incidentally everywhere else at the site where the operations to eliminate the consequences of the accident at the Chernobyl nuclear power plant, was strenuous. And it is natural that in order to work that way every day and hour, it is necessary to have well-organized rest. In this regard it can be boldly stated that everything possible was done for the construction workers under these conditions. The dormitory was located on a small island at the mouth of the Kiev Reservoir. The mess hall was located nearby. The menu constantly included a large choice of fresh vegetables, dairy products, and juices.

"The concern for us construction workers was felt everywhere and in all regards," V. Zhukov, deputy chief of Glavmosinzhstroy, said. Zhukov had made frequent official trips to the area of the Chernobyl nuclear power plant. "Beginning with the precisely organized delivery to the work site and back, and ending with the organization of people's free time. But what struck me more than anything else was the attitude that people took toward the assigned job. Not once did I hear unnecessary questions, or replies of the 'I can't,' 'I don't know,' or 'where can I get it?' type. All the assigned jobs were fulfilled precisely and by the deadline. Everyone worked to the utmost, without concern either for the time, their fatigue, or even their diseases -- because it was necessary to work both in the burning heat and in the pouring rain while wear protective clothing and respirators."

The state commission accepted the project for operation with a rating of "excellent."

"We were convinced," A. Stroyev, first deputy chief of the main administration, says, "that the people from Glavmosinzhstroy would justify the trust that had been put in them and would deliver to Chernobyl the best construction workers from Moscow. In recognition of their selfless labor, bravery, and heroism that had been demonstrated during the elimination of the consequences of the accident, four construction workers were awarded Certificates of Honor by the Pripyat gorkom of the Communist Party of the Ukraine. And all those who had worked at the nuclear power station received letters of appreciation from the Central Staff."

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## CLEAN-UP OPERATIONS

### REPORT ON CLOSING OF SARCOPHAGUS

Kiev PRAVDA UKRAINY in Russian 30 Nov 86 p 4

[Article by A. Sokol, PRAVDA UKRAINY correspondent: "Finishing Efforts; Chernobyl These Days"]

[Text] Work has been completed on sealing off the unit at which the accident occurred at the Chernobyl AES [atomic power plant]. The published material describes the finish of this work.

When they laid the "mammoth"--the giant, most difficult support beam--into the covering, the builders assumed that the task had been completed. Only the details remained, they said. As it turned out, it was not so easy to deal with them. But now there was a telephone call: "We'll close it in about 3 days...".

Spirits were running high that day among the staff of the sarcophagus builders. Somehow everything had been transformed and come to life. Only one thing remained unchanged: the management, as before, was not in. They had gone to the facility since morning.

The road leading here is still the same, with traces of the accident. But everything in life changes. The new duty watch does not even know that near the village of Kopachi it was necessary to change over to armored transports from ordinary automobiles. Today transport moves freely past the "reddish brown" forest--past the radiation "sweep", to avoid which a road had been hastily laid. Finally, the gigantic structures which long awaited their moment on the roadside, were no longer there. As it turned out, they had already formed the last, buttress wall of the sarcophagus. The communist installers promised: "We will install it in 3 days instead of 4". And now it was assembled.

I. A. Dudorov, chief of construction administration No 605, described the situation as follows: "We have only to perform 10 more lifts. Ten out of many thousands!"

Ilya Aleksandrovich tells us that certain production rayons have been disbanded, and others united. Around 40 percent of the collective continues the work.

"But what people these are!", notes the chief.

The "peak" moment was approaching at the control desk of the installation rayon. Everyone was looking intently into the television monitors. The operation leaders

did not put down their microphones. The structure could clearly be seen now on the television screen. It already seemed to be in place. But they still continued lifting and moving it from side to side, and all in vain.

"We have to send in people," someone said.

Installer-fitter Nikolay Sudakov and installers Bayzhan Tokseyitov and Vazha Bebiya went in. Soon the walkie-talkie transmitted a voice from on site.

"Nikolay," they asked Sudakov, "is there a crack?"

"No."

"Get out of there! Quickly..."

"Sudakov nevertheless found what he was looking for, and soon came to the control desk together with the brigade leader.

"Sit down, Kolya," they told him. "Tell us what happened."

"You understand," the fitter-installer grabbed a newspaper which was at hand and began to draw. "The far end is lying firm, but the near one may require a lining."

"How many millimeters?"

"What are you counting millimeters for!?", says brigade leader Aleksandr Zimakov. He had gone the day before to the "mark" and knows how complex this is.

They came to the conclusion that the structure has been reliably placed. I. A. Dudorov comes up and asks: "Like a 'lid'?"

"We put it on".

Now they could take a smoke.

In the evening the managers of the construction subdivisions went up to the sixth "mark". There was a planning meeting. The volumes of the work fulfilled in the course of the day were named--work on concrete placement, on improvement, and on painting. But the center of attention was the installation of the roof. This work remained the most important also for the next day.

The covering of the sarcophagus is complex. Its details were "designed" by circumstances. The fragments which were elevated had to be covered as if with caps. The builders uniquely called them: "the dog house", "the cat house" and "the mouse house". The first they brought up with great difficulties. The last one was the smallest, but turned out to be very heavy.

They began the day by hoisting it up. Parallel to it they installed a no less crucial structure, but all the talk was about the "mouse house". The deputy chairman of the government commission on liquidating the accident Yu. K. Semenov and UkSSR Council of Ministers Deputy Chairman N. F. Nikolayev came to the site. The commission members were constantly at the facility.

They are looking for special section Chief Engineer A. A. Tishkin at the installer control desk. In a little while they ask over the walkie-talkie: "Tishkin, why aren't you starting?" This thin man is omnipresent. He decided to supervise the elevation of the "mouse house" not from the control desk, but from the cab of the crane. From here, he says, one can see better.

The work proceeded with difficulty. There was a short consultation. The structure was installed only toward evening.

At times the tension would ease at the control desk. During one of these pauses, the construction site director, the chief of the installation rayon and several specialists huddled over the blueprints. They discussed what the structure must be like as it was deemed necessary in the course of the work. They tried this and that. The author, it happened, himself rejected his own proposal. The "solution"?--to bring matters to a conclusion. When everything had been determined, P. G. Kim, director of installers, asked the institute representative: "I'd like the plans by this evening, to me personally".

And this was at noontime.

There was one "surprise" after another at the installer control desk. One dare not walk away. Everyone working here was losing his patience: it was impossible to take the sling off the end "lid". Two straps came off, and two would not budge. They tried all suggestions without result. They decided that they had to send a man in. And suddenly one of the straps is freed. Once again they shake the boom, trying to free the remaining one, but to no avail. The installer who went out onto the roof also could do nothing. After a consultation they decide to leave the entire sling installation on top. But someone had to take it off. Fortunately, this was not needed, as the crosspiece unhooked by itself.

The television screens began to darken quickly and unexpectedly.

"That is all, night is falling," they worried at the control desk.

They checked the lighting. Everything was turned on. The spotlights hung on the stratospheric balloon were also shining bright. The night before they helped in painting the buttress wall. They do not help in placement of the "lids".

The subdivision managers prepare the operations front. V. K. Peshkov, chief of the first rayon, asked his colleagues to remove excess equipment from the site. It is time to perform general housekeeping.

"What they don't take away," he said, "we'll take away ourselves. But it will be difficult to look for it later."

The director of installers gave orders on preparations for raising the large "lid". It was the last. The day before it had necessitated using the so-called "bathyscaphe"--a cabin which greatly reduced the radiation level. Technologist V. S. Salmanov went up with his helpers to the "loge" of the structure. After the radiation supervisor determined how much time can be spent here, the measurements began, using a tape measure.



As had been promised, by morning the "lid" hung over its placement site. But it could only be placed 24 hours later. This was done while Sergey Muravyev was operating the crane.

He also installed the "mouse house".

But this was not the last point. The finishing operations turned out to be unpredictably difficult. The 3 days which were allotted were not enough. Moreover, an "additional" 10-day period was needed.

The little "lids" took up time and effort. They were called "little", but in reality each one weighed 21 tons. But the main thing was not their tonnage. They were difficult to fit, and had to be adjusted during placement. From the beginning and to the end they were installed by Krasnoyar workers--a subdivision of the Sibkhimmontazh Trust. Deputy Director V. P. Serebryakov did not leave the control desk. However, work proceeded slowly.

When the last "lid" floated up into the air, many smiled: "This is an historic moment!" The moment really did turn out to be memorable in its duration. The structure was first placed, then removed, then placed again and again removed. And so it went for a day, and then another. In short, no other one gave them so much trouble. But during the shift of crane operator Vladimir Midin they finally finished with it...

Communists stepped up their efforts at the finish. They appointed a responsible worker for each shift, and took the night--third and fourth--shifts under special control. Political section Director V. N. Khaprenko, his colleague N. A. Kalyakin and the entire active membership were constantly concerned with production problems and with the moral spirit. Many builders pinned on the commemorative badge during these days. It is given both for excellence in labor and for courage.

After the "lids" they received their next assignment--to place a roof on the tubular section of the sarcophagus covering over the reactor. Several more days were needed for this, and a day here does not go for naught, but is counted as 3 working days. When it came time to install the sixth and last element of the roof, there were two shift foremen at the crane control desk--A. Ya. Severinov and N. V. Bagin. It was a crucial moment. The main lifting was being completed.

For the course of almost the entire day they reported from the command point: "the roof is on small mechanisms... It is still being brought up."

"Preparations are proceeding. The first rayon, consisting of about 40 people, is helping the installers. "

"We're lifting it!"

"No, we haven't placed it yet. We are aiming, measuring."

"It's not ready yet, it's hanging in the air."

And now it has been installed. Crane operator Nikolay Bobrov is happy. He is happy that the work is done and that the end came during his shift. Crane operators Vladimir Alferov and Gennadiy Titnikov, who "handed" him the structure, are also in good humor.

The finish was apparent. But they worked, as before, round the clock, and the work which remained, the so-called details, still held them in a state of tension and sometimes robbed them of supper and sleep.

"We assembled the buttress wall, and saw that an 'insert' was needed between it and the old structure. It had to be about 80 centimeters, seemingly a trifle. But we are speaking of a structure, and a high-rise one at that. And again there was work."

This huge and stern structure has already long ago been enclosed by a half-kilometer semi-circle made of slabs. But there was a gap in it: they could not finish the work. Now we can close the gates.

12322

CSO: 1800/181

## CLEAN-UP OPERATIONS

### INTERVIEW WITH CONSTRUCTION OFFICIALS

Moscow IZVESTIYA in Russian 30 Dec 86 p 2

[Article by A. Pralnikov, IZVESTIYA special correspondent: "A Construction Site Where People Counted the Minutes"; first two paragraphs are source introduction]

[Text] IZVESTIYA has reported that, in recognition of the bravery and selfless labor demonstrated during the elimination of the accident at the Chernobyl nuclear power plant and the consequences of that accident, the Presidium of the USSR Supreme Soviet has awarded orders and medals to a large group of the workers who had most distinguished themselves.

Our special correspondent discusses meetings he had in Chernobyl with G. D. Lykov, chief of Construction Administration No. 605, and with A. N. Usanov, USSR Deputy Minister of Medium Machine Building, who have been awarded the rank of Hero of Socialist Labor.

Chernobyl, Moscow. Under the overhead of the Chernobyl bus terminal, where passengers usually waited to get into Icaruses, there were armored combat reconnaissance vehicles and special-protection buses in which the work shifts were delivered to the ruins of the fourth unit in the nuclear power plant. Water flowed constantly over the stone slabs near the entrance -- it was necessary to wash the radioactive dirt off one's shoes. The waiting room had been turned into a technical administration: desks had been brought in, as well as Kuhlman drafting units with drawings pinned to them... The terminal building was occupied by the staff of Construction Administration No. 605.

That administration is responsible for erecting the sarcophagus -- the basic construction project in the danger zone.

"Gennadiy Dmitriyevich is at a session of the government commission," L. Gorb, assistant chief of US-605 [Construction Administration No. 605] warned. "He'll be here any minute now. Why don't you wait for him?" Then he immediately got up from behind the desk, smoothing out the nonexistent folds on his black coveralls. Lykov came in.

It was lunchtime and so, in order not to lose any time, the conversation was begun in the mess hall.

There had been no ideal organization, and there could not have been any such ideal organization, of all the work sectors: the task that they were resolving here was too unexpected and complicated. It had sometimes happened that they had hurriedly chosen, from among the large number of alternatives, not the best one, and it had been necessary to make corrections on the run. At first there had been periods of idle time, for example, because of the lack of concrete. The idle time periods are especially burdensome where time is measured not only in hours, but also in roentgens.

In early September Gennadiy Dmitriyevich had said that almost all the associates who had received telephone calls from the medical service had remained in Chernobyl for an additional period, in order to complete with their own hands the job that had been begun.

"This month we are supposed to complete everything. The deadlines are very close, but we have already accumulated a large amount of experience here. For example, the concrete plants began producing output by the twelfth day after the first metal structures were brought to the construction site where they are now standing."

"We are responsible for the sarcophagus," USSR Supreme Soviet delegate, State Prize winner Lykov said. "But, of course, our administration was not the only one engaged in constructing it. The labor of many scientists and designers has gone into its creation. A large amount of aid has been provided by USSR Minmontazhspestroy [Ministry of Installation and Special Construction Work]."

Work rates and volumes like this had never existed before in construction practice. The entire "shop" operates without a stop, day or night. The sections of the most powerful wall of the sarcophagus are being installed. One after another, the cement-mixer trucks deliver the mortar to the foot of the next ledge, and pumps carry it upward over long pipelines and dump it into the body of the structures, where the concrete becomes protection against radiation. This job took all of September. But now, arriving at Chernobyl again, I read on a display board in front of the US-605 staff:

"26 September. Flash. At 0500 hours the installation of the last section was completed. The installation of the fourth tier of the cascade wall has been completed. The 'great' wall has been erected!"

Simultaneously work to cover over of the reactor chamber was in progress.

The area that is called, according to the custom at the power plant, the "bunker," although it is not located under the ground at all, was crowded with people. Exhausted people wearing coveralls were in front of television screens by means of which they were observing the installation of the sarcophagus "roof" at a height of 60 meters, and seated on wooden benches behind tables that had been knocked together out of boards. In front of them were control panels, telephones, and radio communication equipment. An

installation worker whom I know gestured with his eyes in the direction of a person who was talking on the telephone, and said, "That's Usanov. He will give you all the commentary."

I worked my way past those who were seated and I found a place for myself alongside of him. Aleksandr Nikolayevich was apparently reporting to someone, but in a completely calm voice. Then, after completing the conversation, he turned to me and, in the very same tone, said, "The most important thing is that every operation has to be carried out absolutely accurately at the first pass. Nothing can be adjusted or changed up there: it is impossible for a person to be there. It is necessary to make the most accurate preliminary computation. Everything here depends upon the crane operator's skill and the accuracy of the spotters who transmit the commands by radio from the observation points: the working zone to which the load must be lowered cannot be seen from the crane operator's compartment. It is not enough just to say that this work requires a touch as delicate as a jeweler's."

"The wall that divides the damaged fourth unit from the third is already completed," Aleksandr Nikolayevich continued. "Large-diameter pipelines have been installed. These are the main lines for the forced intake ventilation and the exhaust ventilation."

Then Aleksandr Nikolayevich recalled the first days -- or, rather, 27 April -- when, above the formless heap of rubble, the crimson glow from the red-hot reactor was still blazing in the sky, when they had only begun to bombard the radioactive crater from the air with bags of sand, clay...

But I could not get out of my mind the framed inscription that I had seen in Chernobyl in one of the offices of the government commission. It read, "An intelligent person will find a way out of any complicated situation. A wise person will not find himself in that position." Now we know the causes of the catastrophe. We have acquired the difficult experience of eliminating the consequences of an unprecedented accident. Chernobyl showed us the misfortunes that can result from carelessness. That experience must provide new wisdom to all mankind.

The sarcophagus has been closed and approved by the state commission. The personnel in US-605, who now have been reduced by one-half, now have other tasks -- to help to deactivate the equipment at the nuclear power plant.

Industrial current is going into the power system from the first and second units of the Chernobyl nuclear power plant. Preparations are under way to renew the construction of the fifth and sixth units: Chernobyl is accepting new inhabitants -- those who will complete that work. But the pyramid above the Pripyat will continue to be a reminder of the stern lesson, and a warning against mistakes.

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CSO: 1800/178

## CLEAN-UP OPERATIONS

### BRIEFS

CHERNOBYL OPERATIONS RESUME--Kiev Oblast--The main cleanup work at the Chernobyl AES accident site is nearing completion. Two days ago, construction personnel finished a key operation when they emplaced the 70-meter beam on which the final roof structures for the tomb will be placed. Yesterday, at 12:36, the third turbogenerator was hooked into the grid, and the second unit began producing power. The shift overseeing the startup operations was headed by N.B. Bekeshko. [By PRAVDA UKRAINY correspondent A. Sokol] [Text] [Kiev PRAVDA UKRAINY in Russian 6 Nov 86 p 1] 13189/9365

SUPPLY PERSONNEL'S CHERNOBYL ROLE--Entombment of the fourth unit is drawing toward completion. The work necessary to accomplish this is hard and, to some extent, reminiscent of holding the front in battle. The construction personnel at the site are true heroes. But, to continue with the military analogy, any victory requires a solid support contingent, too. And the workers in the rear guard--the sobriquet the supply people have received--have not let their comrades down; a single call is sufficient to ensure delivery of necessary materials. Here are just a few examples of how the rear guard is working. Early one evening, metal material that could not be found locally was needed. A request went to Kiev by telephone, and not in the slower mail, and later that night a load of the necessary material was delivered. In another case, workers needed a large quantity of nonstandard thickness porolon [elastic gas-filled polyurethane-based plastic] in order to seal joints. And, although it was Sunday, which is not a workday, the Ukrainian SSR Gossnab put together a porolon production run, with the result that a load of the necessary material was delivered without delay. Even on holidays, trucks, trains, and airplanes have been bringing in cargoes of necessary materials. Holiday deliveries started when the cleanup began and are continuing as it draws toward completion. We are getting considerable assistance obtaining the things we need from the following people: Ukrainian SSR Gossnab Deputy Chairman A.S. Smirnov; Deputy Chief of Kievglavsnab [Kiev main equipment and material supply administration] V.I. Shcherbanyuk; and many other personnel, including N.S. Lunev, A.K. Minchenko, A.I. Karmazin, A.I. Polochko, and S.I. Ignatenko. [By Deputy Chief of the No 605 Construction Administration O. Safyanov] [Text] [Kiev PRAVDA UKRAINY in Russian 1 Nov 86 p 1] 13189/9365

CHERNOBYL ACCIDENT REPAIRS COMPLETED--This past Sunday the last construction workers completed their work on capping the damaged unit of the Chernobyl AES. The shortcomings noted by the acceptance committee were corrected, and the cap was turned over to a collective of reactor No. 4, a special section of the AES, for maintenance. In spite of incredibly difficult conditions, Construction Administration No. 605 built the unique structure in a very short time period. The collective, made up of 44 nationalities of the country, discharged their duty with honor. It is now time to go home. [By A. Sokol, PRAVDA UKRAINY reporter] [Text] [Kiev PRAVDA UKRAINY in Russian 9 Dec 86 p 4] 13005

CSO: 1800/179

## MEDICAL SERVICES

### MEDICAL ACTIVITIES AT PRIPYAT CONTINUE

Kiev PRAVDA UKRAINY in Russian 11 Dec 86 p 4

[Article by Yu. Vilenskiy: "A Shield In the Path of Unexpected Events: Medical Work in Pripyat"]

[Text] Together with G. N. Gladkov, deputy chief physician at the Kiev Oblast Sanitary-Epidemiologic Station, we bend over a map of the city of Pripyat. Here are the outlines of the microrayons, the administrative center, and the hospital complex. The map is dotted with notes. One can see that this map was used every day. For a month it served as the orientor in conducting preventative medical operations in the city. Widespread disinfection measures were implemented in accordance with the directive of the government commission on liquidating the consequences of the accident at the Chernobyl AES [atomic power plant].

"Although these blocks are temporarily closed and everyday life has died down for the time being," says UkSSR honored physician V. V. Malashevskiy, chief physician of the oblast SES [sanitary-epidemiologic station], "this doesn't mean that anti-epidemiologic prophylactic measures are not needed here. On the contrary the presence of rubbish and remnants of food products in the homes provides a breeding ground for the spread of rodents and insects. It is clear that if we do not intervene in such processes, the danger of emergence of reservoirs of infection may arise. This ecological watchfulness had be placed on a practical footing. As soon as the level of the radiation background resulting from the performed decontamination made it possible to implement protective anti-epidemiologic measures, they were taken."

The struggle against carriers of infectious disease is a matter of primary importance for our service. However in such a volume, and under conditions of an entire city which still continues to be in an extremal situation, it was put in order for the first time. A special detachment of medical workers was formed for this purpose. It was headed by G. N. Gladkov, an epidemiologist by profession, and by N. F. Kryzhov, chief of the disinfection section.

"All 40 people who participated in the disinfection of the city undertook this difficult task voluntarily, even though they fully understood the load," continues G. N. Gladkov. "Imagine, for example, 9- and 16-story buildings in which the elevators have been turned off, large-capacity dormitories, dining halls and other facilities. Being strictly methodical, it is necessary not to overlook



any "bare spots," to overcome countless flights of stairs, to go through street after street carrying rather cumbersome and heavy apparatus and wearing special clothing. Considerable amounts of disinfectant materials are needed to treat all these areas. We prepared the solutions on site and used them right there. Consequently, the conveyor for supply of initial materials had to operate continuously, and in coordination with the geography of our advance.

In a word, this was a continuous and intense task. I would especially like to note the indefatigability and skill of disinfection instructors N. S. Tkach, M. A. Kravchuk, Zh. Z. Yaroshenko, disinfection worker L. I. Starkova, and other associates of the Belotserkovskiy City Disinfection Station, who comprised the nucleus of the group. M. V. Volokha, driver from the Brovarskiy SES, did an exceptionally fine job in delivering the materials for disinfection. From morning to night his unfailing UAZ was in operation. Drivers I. N. Volodko from Mironovka and N. P. Cherep from Kagarlyk also did an excellent job.

"This crucial task was also unique in that the work brigades did not know the city or the peculiarities of certain buildings," continued G. N. Gladkov. "And we simply could not have handled this volume of work within the planned time had it not been for the reliable shoulder of those who, not distinguishing responsibilities into ours and theirs, helped us in every way possible. These were AES Deputy Director V. I. Gorokhov, Senior Engineer P. V. Romanets, Architect M. G. Protsenko, associates of the militia, and workers of the Pripyat party gorkom and gorispolkom G. A. Gavrilov, V. V. Gorbatenko, and A. Yu. Esaulov. The clear-cut organization of the task made it possible to perform the work in two shifts instead of the three which had been envisioned.

"And how do you and your comrades feel?"

"Despite the weeks of all-out work effort, everyone feels good. No one has gotten sick with anything. No one has gotten a cold or the flu. Even though we worked 10 hours a day, without days off or holidays, the feeling of the important goal mobilized everyone. The medical check-ups of the work brigade members also testify to their normal health state."

"People continue to work in Pripyat--at the AES, in the staff of city organizations, and in the laundry," concludes A. I. Avramenko, head of the Kiev oblzdravotdel [oblast health section]. "Scientific research is to be performed. The radiation situation makes it possible to formulate the question of placement of duty watch shifts in certain rayons of the city. However, considering the unusual nature of that which has occurred, it was necessary to place an all-encompassing sanitary shield in the path of any infection dangers or unexpected events. It was just such work, ensuring the strong anti-epidemiologic state of the city, which has been recently completed in Pripyat.

12322

CSO: 1800/181

## MEDICAL SERVICES

### RADIATION CLEANSING EQUIPMENT AWARDED PRIZE

Kiev PRAVDA UKRAINY in Russian 17 Dec 86 p 2

[Article by V. Korobkov: "Prize No. 904"]

[Text] A group of developers headed by Candidate of Chemical Sciences A. P. Shutko, laboratory chief in the Kiev Polytechnical Institute, has been awarded a prize for devising a new technology of decontaminating radioactive water. The prize number is 904.

The problem of decontaminating water arose immediately after the accident occurred at the Chernobyl Nuclear Electric Power Station. At that time, when an endless line of motor vehicles carrying the necessary cargo was rushing to the AES, scientists and specialists were faced with a problem: to find a reliable and practical method of cleansing radioactive water. The fact is that all the equipment which had passed through the contaminated zone was subjected to a decontamination process. At first the contaminated water was stored in special tanks, but there was a limit to that.

Cleansing methods which required enormous capital expenditures and great amounts of time were soon discontinued. At that critical time the city civil defense headquarters turned for assistance to the Kiev Polytechnical Institute, since it was known that the creative group of institute scientists had originated a number of interesting procedures for cleansing contaminated industrial waste water using reagents made from industrial wastes.

Next to an enormous tank filled with fouled water a dosimeter pointer deflected to the right. Nearby a heavy KrAZ came to a halt. A compressor pumped reagent from a tank mounted on the truck into the tank holding the waste water. In little more than a half hour, radiological engineer Valentina Kovtunenکو announced the result: the water was free of radioactivity and could no longer harm man or inhabitants of water bodies.

The process suggested by polytechnical institute docents A. D. Krysenko, V. P. Basov, and A. P. Shutko, and Institute of Civil Aviation Engineers senior instructor L. P. Malakhov is economically advantageous, simple and reliable. A total of almost 4 million rubles was saved after only the first two weeks of operation of the process.

Within a very short period of time, a mobile water cleansing unit was fabricated and put into successful operation.

Much credit is also due in this regard to civil defense personnel of the city, who exhibited a responsive and skillful approach to a difficult situation. This included A. V. Fedorenko, G. A. Kulayev, B. P. Petrasyuk, and A. A. Buravenko.

The path of an insidious and invisible enemy is being blocked by people who go out on missions from equipment decontamination stations at any time of the day or night in response to a call for help.

13005

CSO: 1800/179

## MEDICAL SERVICES

### BRIEFS

KIEV RADIATION HEALTH CENTER ESTABLISHED--Kiev, 6 Feb (TASS)--Protecting people's health from even minimal effects of radioactive elements and providing prompt and highly-trained preventive care are the aims of the new specialized health center for radiation protection of the population, set up in the Ukrainian capital. The health center's structure envisages practically everything for systematic observation of the health condition of citizens who were resident in the area of the Chernobyl Atomic Station. Since the inception of the health center over 1,000 people have been examined using radiometric control and a set of the most precise tests. [Text] [Moscow TASS International Service in Russian 0900 GMT 6 Feb 87 LD] /8309

CSO: 1800/191

## HOUSING

### SHIPPING ON PRIPYAT, DNEPR IMPROVED

Kiev PRAVDA UKRAINY in Russian 14 Dec 86 p 3

[RATAU report by V. Vernodubenko and M. Volobuyev: "A Settlement Will Become a Town"]

[Text] "Yakor", an unusual floating settlement, has been created not far from the village of Nedanchichi in Chernigov Oblast. The houses here are comfortable excursion type Diesel-electric ships refurbished as hotels. Six of them already shelter the first occupants, who are builders participating in the construction of Slavutich, a new town for personnel of the Chernobyl Nuclear Electric Power Station.

To make it possible for motor ships to enter here and dock, it was necessary to accomplish a great deal of work. As we know, loaded ships previously sailed only upstream on the Pripyat. The shallow water of the Dnepr in this area made navigation difficult. Now, however, dry cargo is transported freely not only on the Pripyat in the direction of Chernobyl but also upstream on the Dnepr.

The above was made possible by measures taken by Ukrainian and Belyorussian river transportation specialists. Eight powerful dredges were brought here from Kiev and Mozyr in the fourth quarter; their crews worked round the clock pumping sand slurry from the bottom of the Dnepr. In little less than one month, they deepened the channel in a 40-kilometer section between the villages of Teremtsy in Kiev Oblast and Nedanchichi in Chernigov Oblast, removing 12 bars that hindered navigation.

Later the dredges worked to transform a narrow channel into a wide canal with an artificial bay, which then received the residential ships.

"We previously had never had this class of ships stay the winter in water subject to freezing," said P. I. Podlesnyy, first deputy chief of the UkSSR Glavrechflot [Ministry of the River Fleet MA]. "Winter preparation of these ships was assumed by a state committee. Four more Diesel-electric ships which were prepared for winter are docked here. Electric power and telephone lines have been connected to them and long-term mooring effected. Drinking water is supplied by wells dug to a depth of 200 meters. The ships are provided with all conveniences, including a cafeteria."

"Plans call for the new town to be built in the shape of a horseshoe, which will include various facilities of a social, cultural and recreational nature, and a green zone," said Yu. M. Malakhov, manager of Trust No. 31, Glavzapstroy [Main Administration for Construction in Western Regions]. He had come from Leningrad. "I became convinced that everything had been done here to do the job."

Night was falling. Vessels laden with construction materials for the Chernobyl AES and the future town continued to plow the waterway. Ice started to form on the surface of the reservoir, prompting ice breakers to visit the Kiev port. They will soon clear the way to the "Yakor" for three more residential motor ships.

13005

CSO: 1800/179

## HOUSING

### PRAVDA DESCRIBES REPOPULATION PLANS

PM181149 Moscow PRAVDA In Russian 15 Dec 86 Second Edition p 1

[Special correspondents O. Ignatyev, M. Odinets, and A. Pokrovskiy report:  
"The Energy of Chernobyl"]

[Text] Kiev Oblast--The car was rushing along beneath the high-tension power lines originating at Chernobyl AES. For the first time in a long while, the car radio lost the signal under the powerful effect of the current flowing from its first two power units. The energy of Chernobyl is flowing again into the country's power grid.

We recalled immediately our numerous encounters behind the invisible line which delimited last April's accident--inside the "zone" where enhanced radiation highlighted not only our shared misfortune but also human courage, technological know-how, and a really high tension of will and reason. The tension which has taken the tangible form of the first 2 million kilowatts of electricity from Chernobyl AES.

New encounters lay ahead of us this time. No longer with dosimetry operators, construction workers, or repairmen, but with the AES operators. Actually, all these specialists vocations were often combined in one and the same person. Like Valeriy Petrovich Zakharov who, on the day of our arrival, was in charge of the work shift at the No 1 power unit, and whose previous shift had been scheduled for 27 April.... Instead, he had to start work on liquidating the consequences of the accident. But now V. Zakharov, like many of his colleagues, is once again an operator.

"We have learned a lot in the last few months," Valeriy Petrovich added. "Both during the liquidation of the consequences of the accident and during the preparation for the resumption of normal work. And this is perhaps true for all working people at the AES. It can be said that a definite mental advance has occurred--now there is a much more acute sense of responsibility for our actions. We have also become more thorough toward each other's actions, we concentrate more during discussions, and we always repeat the orders we have been given. Instructions governing the use of equipment are observed more rigorously. All this is supplemented with regular accident prevention training."

We completed this conversation in the No 1 power unit's central hall, unable to resist the temptation to cross the reactor "ceiling"--it operates really safely.

But the AES does not, of course, account for the entire 30 km zone. Even there, though, new tasks are now coming to the fore as a result of the large-scale decontamination. The situation is getting back to normal, and there is already talk about the return of residents from a number of Chernobyl'skiy Rayon villages to their old homes. It is well known that people evacuated from the villages of Zavoshne and Nivetskoye returned home back in the summer. Reevacuation to a number of [larger] population centers now lies ahead.

"This is not an easy process," we were told by G. Revneko, first secretary of Kiev party obkom, "and we are preparing for it very seriously. By all accounts it will begin by late winter or early next spring. People will return to 14 villages to start with, and to a further 8 villages after that. Preparations for further reevacuation will proceed in parallel.

"The main point now is to prepare the houses for people to move in, change the old roofs, and check the water supply. It is equally important to organize the services sphere properly--to give some thought as to how consumer services, trade, hospitals, polyclinics, schools, and kindergartens will operate. Finally, last but not least, we are faced with the problem of organizing the economic activity of people who will be reevacuated to villages in the Chernobyl region. We are planning to redesign and change the structure of farms--it is intended to set up several sovkhoses instead of kolkhoses. They will engage in stock-raising and feed production.

"Major work has to be done to select specialist cadres for sovkhoses, schools, stores, and hospitals. After all, many people from the Chernobyl region have left the oblast and even the republic. Will they come back? Whatever happens, every population center will have to lead a full life, and every resident and every family is entitled to expect medical assistance, club facilities, schools, stores....

"It is still not quite certain how many people will decide to return, but it is clear that by no means everyone will. Our Makarovskiy, Borodyanskiy, Vyshgorodskiy, Zgurovskiy, and other rayons have built 56 new settlements with all facilities, where some 11,000 families have been housed. Many people like the new homes. We expect that young people will opt for the new villages, while people from the older generation, who cherish the memory of the places where they born, will return.

"Much else has been done to renew population centers, apart from decontamination. Polesskoye has changed, its streets and squares have been asphalted, houses have been repainted. A public bath and laundry complex is being built now. The gas pipeline section which ran between Ivankov and Chernobyl has been extended to Polesskoye.

"Many families which were resettled were given considerable sums of financial assistance. This enabled them to live through the hard times of settling in a new place, and it will, incidentally, be available in the process of reevacuation. Compensation will also be paid to those who have not yet received it."



By way of continuing this conversation, we talked to A. Romanenko, Ukrainian SSR minister of health and director of the All-Union Scientific Center for Medical Radiology, recently established in Kiev.

"The point of setting up such a center in Kiev is obvious," Anatoliy Yefimovich said. "We must not only treat the victims but also carry out extensive preventive work and monitor the health dynamics of all who were affected in any way by the consequences of the accident at the Chernobyl AES. The main avenues of the center's work can be guessed from the names of its three institutes--Clinical Radiology, Experimental Radiology, and Epidemiology and Prevention of Radiation Injuries.

"What has been done specifically? All evacuees have undergone medical examination, and teams of physicians have been sent to places where radiation effects could be expected. Everyone who needed to be was hospitalized and underwent a course of treatment. Particular attention was given to children. All the data have been stored in a computer memory for further monitoring.

"I am far from thinking," Antoliy Yefimovich said in conclusion, "that all danger has now passed. It is still very important to continue the rigorous monitoring of the environmental conditions and the purity of foodstuffs and water. Next year's spring floods and fall harvest will, of course, call for particular attention. So our center still has quite a lot to do."

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CSO: 1800/177

## HOUSING

### NEW HOUSING CONSTRUCTION REPORTED

Kiev RABOCHAYA GAZETA in Russian 18 Dec 86 p 3

[Article by V. Vernodubenko and M. Volobuyev, RATAU correspondents: "A City Begins from a Settlement"]

[Text] The unusual floating settlement "Yakor" [anchor] has been created not far from the village of Nedanchichi in Chernigov Oblast. The housing there consists of comfortable tourist diesel-electric powered ships re-equipped as hotels. Six of them already house the first new residents--builders who are participating in the construction of a new city for the power plant workers of the Chernobyl AES [atomic power plant]--Slavutich.

A large volume of work had to be performed in order to enable the diesel boats to enter and tie up here. After all, before the loaded transport ships only went up river along the Pripyat. Navigation along the Dnieper in this region was hindered because of the shallow water. Today, however, the dry-cargo ships freely pass not only along the Pripyat in the direction of Chernobyl, but also up-river along the Dnieper.

This has become possible thanks to the measures taken by Ukrainian and Belorussian river transport workers. In the fourth quarter, 8 powerful suction dredgers were sent here from Kiev and Mozyr. Their crews worked round-the-clock, dredging the sandy silt from the Dnieper bottom. In less than a month, they deepened the river along a 40-kilometer section between the villages of Teremtsy in Kiev Oblast and Nedanchichi in Chernigov Oblast, removing 12 shoals which had hindered navigation.

Then the suction dredgers entered the narrow shallow channel and turned it into a wide canal with artificial inlet. This is where the hotel ships entered. "Never before did we leave diesel ships of such a class to spend the winter in the ice," says P. I. Podlesnyy, first deputy chief of the UkSSR Glavrechflot [Main Administration of the River Fleet]. The work on preparing these vessels for the winter was accepted by a state commission. There are four more diesel-electric powered ships moored here, on which preparations have been completed for the winter. They have been supplied with electrical power and telephone communications, and a new run of cable is being laid. The drinking water comes from wells drilled to a depth of 200 meters. The ships have all the conveniences, including a restaurant and dining room.

"The new city is planned in the form of a horseshoe, inside of which various social-cultural and domestic facilities and a greenery zone will be located," says Glavzapstroy Trust No 31 director Yu. M. Malakhov, who came from Leningrad. "I have become convinced that all the conditions for work have been created here."

Evening was falling. Transport ships laden with construction loads for the Chernobyl AES, as well as for the future city, continued to pass along the waterway. Ice was already forming on the reservoir. That is why ice-breakers had come to the Kiev port. They would soon lead 3 more diesel ship hotels to "Yakor".

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CSO: 1800/180

## HOUSING

### GOMEL OBLAST PROVIDING MORE HOUSING FOR EVACUEES

Moscow SELSKAYA ZHIZN in Russian 14 Jan 87 p 2

[Article by O. Bychkov, First Secretary of the party's Gomel Obkom, Gomel Oblast, under rubric "Improving Rural Construction": "In the Main Sector: In the Villages of Gomel Oblast the Movement to Provide Every Family With a Separate Apartment Is Becoming Increasingly Widespread"]

[Text] Recently I paid another visit to our shock-labor construction sites. In particular, on the Za Rodinu Kolkhoz, where 14 homes have been transferred to persons evacuated from the area of the Chernobyl Nuclear Power Plant -- to the Kolkhoz imeni Kalinin. The persons on the waiting list on the local kolkhoz took an understanding attitude to this, because they still have somewhere to live. In addition they have been given a firm promise that they will receive apartments this year. But for the time being in our rayon we must find a place in new, efficient apartments for several hundred evacuated families, for 200 of whom housewarming parties have already been held. These homes are being erected by using state funds.

But in general, today it is easier for us party workers to talk to people about social questions -- the acuteness of the chief problem, the problem of housing, has been removed. The rates of turning over apartments for kolkhoz members and sovkhoz workers are currently such that, on the rayon scale, we are able to resolve the housing problem during the current five-year plan. Discussing the initiative of the people of Gorkiy, at rallies and in production collectives, this is what people wrote in their pledges: "By 1990, on kolkhozes and sovkhozes, provide apartments to everyone who is on a waiting list..."

This is the dynamic situation. Whereas in the 10th Five-Year Plan slightly more than a thousand families in the rayon had housewarming parties, in the 11th Five-Year Plan 3065 families had them and in the 12th we shall turn over (not taking into consideration the homes where evacuees have been placed) 3600. The possibilities for such a broad scope exist in the increasingly stronger economy of the kolkhozes and sovkhozes. For example, the Sozh Sovkhoz-Combine where a 180,000 [kilogram] hog-raising complex has been operating successfully, during the year had a profit of slightly less than 11 million rubles. In the same year each of the following organizations at a profit of 1.1-1.4 million rubles: the Kolkhoz imeni Uritskiy, Pobeda Kolkhoz,

the Berezki Stud Farm, the Brilevo, Yuznyy, and Gomelskaya Ovoshchnaya Fabrika sovkhoses, and the Rassvet, Gomel, and Novobelitskiy poultry plants. The Krasnoye Znamya Kolkhoz comes very close to them. One can see here the noticeable effect of the amounts of money received for having exceeded the volumes of sale to the state of output of the fields and animal farms as compared with the level in the previous five-year plan. The Yuzhnyy Sovkhoz alone received 934,000 rubles during the year.

For the rayon as a whole in 1985, 14.4 million rubles was received from the sale of agricultural output in excess of the basic purchase prices, in the form of various markups. In this respect the past year had an even better "harvest": most of the kolkhoses and sovkhoses noticeably surpassed the level achieved in the 11th Five-Year Plan for delivery of output from vegetable and animal husbandry to the state. And, of course, there has been a corresponding material benefit.

That is why considerable funds are being allocated everywhere for the construction of housing. And in general people have begun looking more assiduously at many things. For example, on the Zarya Sovkhoz people found the possibility of re-equipping two old poultry sheds that at one time had belonged to the Rassvet Poultry Plant, making them into well-equipped bullock sheds. Three hundred steers have been put there in order to be fattened up. The construction of new accommodations for that number of head of livestock would have required at least 180,000 rubles, but in this instance approximately 20,000 were expended. On the Sovkhoz imeni Zhdanov 709,000 rubles were economized in this manner by redesigning an old dairy farm. All the economized money has been channeled into housing.

Now the task is to erect new apartments more rapidly. And they must definitely be as attractive as those on the Brilevo Sovkhoz. A. Kobrusev, director of that farm, asserts, "Our housing must be not just on a par with, but better than the urban housing, because we are inviting first-rate workers to take part in our production." This is typical of most of the farms in the suburban area. The rural inhabitants' apartments are very pretty! I'm not even speaking about the two-level farmstead-type houses that are being built on the Kolkhoz imeni XXII Syezd KPSS, or the excellent settlement of almost 400 apartments on the Sozh Sovkhoz-Combine. If anyone makes a comparison there, the standard urban multistory buildings can evoke only a condescending smile from the rural inhabitants.

Obviously, nothing comes by itself. Consequently, there is a lot of work to reinforce the material-technical base for the construction workers. Two mechanized columns have been consolidated and combined into one. The previously disconnected construction resources have been centralized and a greater use of industrial and prefabrication methods has been achieved in the construction of housing. And there has been a reduction in the number of "almost-builders," inasmuch as there has been a reduction and an qualitative intensification of the administrative apparatus. The persons remaining at the helm are efficient, creatively-minded specialists.

But even a mechanized column that is now rather powerful is incapable of carrying out the entire volume of housing construction that has been planned

by us. Thus, simultaneously with the contractors, the kolkhoz and sovkhos construction brigades are also erecting housing in rural areas. On the Za Rodinu Kolkhoz and the Kolkhoz V. I. Lenin, the total 100 percent of housing is being turned over by the in-house method; on the 1 Maya Kolkhoz and the Kolkhoz imeni Uritskiy, two-thirds; and for the rayon as a whole, one-fourth of the total volume of housing construction. Within the near future we shall increase the share of rayon-wide in-house method at that projects to 45-50 percent. The economically strong farms are changing over to the building of housing chiefly by this method. And we shall intensify the weaker ones by using contractors.

The collectives of the Gomel industrial enterprises that are sponsoring our kolkhozes and sovkhoses have been providing active assistance. In the 11th Five-Year Plan they turned over to us 145 apartments; in the 12th they promise 156. And all indications are that they will keep their word. In addition, with the aid of the Gomel House-Building Combine, there has been increased construction of cooperative housing in the rural areas: in the 11th Five-Year Plan 227 such apartments were turned over, and in the 12th we shall build 461.

An important reserve in the increase in the volumes of individual construction of housing. There was a time when, in a number of villages, it was as though people had forgotten what building one's own home means. And yet many people have the funds, their personal savings. In this direction we have carried out a certain amount of work, and so, during 1981-1986, by the industrial-construction method (naturally, with the aid of the kolkhozes and sovkhoses) 537 apartments were built. In the current five-year plan there will be more of them.

But a question that remains on the agenda is: how can we introduce order into the delivery of building materials for use with the in-house method? Currently this method is being encouraged and it does not cost too much, but just try to find the materials... One good thing is that, finally, industrial enterprises have been authorized to sell to kolkhozes and sovkhoses that they are sponsoring the materials that have been economized at the enterprises' construction projects.

Another question is how to involve more rapidly in the construction of rural housing the ministries and departments that have their own subdivisions. Take, for example, the Bolshevik peat enterprise. If there had not been a local housing-construction cooperative that we were able to reinforce, the situation with regard to housing here would have been quite bad. In the 12th Five-Year Plan 104 apartments will be built on a cooperative basis for workers at the peat enterprise, and only 27 by the contract method. The republic ministry is not issuing any more funds.

Every year we expend a quarter of a million rubles to lay gas networks and install centralized gas boiler rooms. There are already 16 of them on kolkhozes and sovkhoses, and soon two more will be turned over. But how is this happening? We have been given the authorization to lay gas networks at the village of Markovichi (Krasnoye Znamya Kolkhoz) where a settlement consisting of 100 homes is being built. And literally right alongside is the

village of Makovye (Pervomayskiy Kolkhoz) where there is also a new settlement. But, in response to our question, we were told that gas "has not yet been provided" for it, although the expenditures for continuing the network will be extremely small, while the saving of solid fuel subsequently will be major.

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## HOUSING

### BRIEFS

CITY FOR CHERNOBYL WORKERS---Slavutich is the future city for power plant workers at the Chernobyl AES [atomic power plant]. It is not yet on the map of Chernigov Oblast, but the beginning of its biography has already been laid. The construction site has been selected on the banks of the Dnieper. Slavutich will be built by representatives of 8 fraternal union republics. The city is ensured a rapid growth. In 2 years its population will comprise 10,000 people. Within 10 kilometers of it, not far from the village of Nedanchichi, a floating duty watch settlement is being developed for the builders. Modern, comfortable diesel and electric powered ships have tied up to the river banks. Their cabins will house workers and specialists. Each of the ships will accommodate over 200 people. The Dnieper river workers have made every effort to create the most favorable conditions for the life of those who will build Slavutich. Electrical power and telephone communications have been brought in to the ship-hotels, and drinking water comes from wells specially drilled to a depth of 200 meters. [Text]  
[Kiev PRAVDA UKRAINY in Russian 16 Dec 86 p 1] 12322

CHERNOBYL RECEIVES INFERIOR GOODS---"New Housing in Zelenyy Mys"---the correspondence under this heading, dealing with the operational submission of the first series of the duty watch settlement for workers of the Chernobyl AES (RABOCHAYA GAZETA dated 5 October) sharply criticized the Volgograd Wood Processing Plant imeni Kuybyshev for sending wood houses with defective sanitary engineering to Zelenyy Mys. As a result, the schedule for moving in to the housing was disrupted. As First Secretary of the Volgograd Party Gorkom V. Kochetov reported to our editorial staff, the critical statement by RABOCHAYA GAZETA was discussed at an expanded meeting of the enterprise partkom. For the poor quality of houses sent to Zelenyy Mys, plant Director V. Koldayev and Chief Engineer V. Petrov, both CPSU members, were issued strict reprimands. The same punishment was also inflicted on the enterprise partkom secretary, I. Miroshnichenko, who did not provide for the mobilization of the house building collective in the timely and quality delivery of goods to the Chernobyl workers. The plant's Chief Technologist Ye. Lakhovskiy, Chief Designer V. Lapin, Deputy Director N. Zemlyanskiy, OTK [technical control section] Chief I. Shkurin, House Building Shop Chief Yu. Dyrin, Material-Technical Supply Chief A. Pridatko, and Senior Control Foreman V. Ageyev were also brought to strict party responsibility. By plant directive, S. Pogulyay, deputy chief of the house building shop, and Senior Foreman L. Goncharov were relieved of their duties. Yu. Dyrin, chief of the house building shop, V. Yudin, senior foreman of the sanitary engineering section, and V. Ageyev, senior control foreman, were given monetary fines. The editorial staff also



received a response from Zhitomir Oblast Partkom Secretary V. Ostrozhinskiy on its criticism of the Zhitomir furniture makers who had sent defective furniture to Zelenyy Mys. A. Shakhrychuk, enterprise manager, and V. Dubovik, chief of the technical control section, visited the duty watch settlement to correct the defects. The weak quality control of the furniture delivered to Chernobyl power workers was firmly pointed out to them. Additional measures were taken to improve product quality. [Text] [Kiev RABOCHAYA GAZETA in Russian 25 Dec 86 p 2] 12322

CHERNOBYL EVACUEES RETURN TO HOMES--Minsk, 30 December (TASS)--The inhabitants of the village Gden in Belorussia, who had been evacuated from the danger zone of Chernobyl AES eight months ago, returned to their home districts today. Their neighbors--inhabitants of the villages Ivanovka, Lyudvinov, Paseka, and others; in all 12 populated settlements of the Gomelskiy Rayon in Belorussian--will likewise usher in the new year in their own homes. In all, approximately 1,500 people have returned to their home districts. [Text] [Moscow TASS International Service in Russian 1445 GMT 30 Dec 86 LD] /12913

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## PLANT OPERATION

### TEST RUN OF FIRST UNIT

Moscow KOMSOMOLSKAYA PRAVDA in Russian 3 Oct 86 p 1

[Article by P. Polozhevets: "Five Months Later"]

[Text] A test run of the first unit at the Chernobyl AES has taken place. And the massive effort to entomb the damaged reactor has been concluded.

This is the report from our correspondent:

Petrov had been working late and by the time he thought about leaving, all the vehicles had already left for the base camp. Of course there were vehicles on call even at night, but by the time they got you to your destination it was time to leave again. After assessing the situation, Petrov decided to forget about trying to get a ride, and instead pushed three chairs together, spread his quilt jacket on them in the best arrangement he could manage, and promptly fell asleep.

In his "civilian" job at home in Moscow, Petrov worked as the deputy chief engineer in a large administration. His job was dealing with complex construction projects, but he had never found himself in a situation that was a disaster. So, he requested that he be sent to Chernobyl, where he was put in charge of party activities in the first construction region.

He dreamed that his granddaughter had run out into the yard, stayed there for a while, and then returned. He must have left the door unlocked. And she kept calling him on the phone. Then, as he was locking the door in the dream, he heard the key rattle in the lock, and suddenly woke up, the telephone receiver in his hand. A look at his watch told him it was 5:30. Another work day had begun. Ahead of him were a staff meeting, a consultation, pre-shift meetings, awards, and the newsletter. We ran into him in the doorway as he was on his way to the plant.

"Let's have a look at the tomb from up close," he said.

Building the "tomb" had not been an easy job, although reasons other than the fact that this was the first time anyone in the world had attempted such an undertaking were responsible for this difficulty. In essence, the entombment of the damaged reactor was a battle against an invisible enemy.

Nowadays, the reactor is stable. Experts understand how it behaves and what is going on inside it. Nowadays. But the situation was far from under control a while back. No one could get near the reactor, either on foot or by vehicle, and only robots could be seen moving about on the site. Slowly, often in shifts that lasted only a minute, construction workers managed to close in on the the fourth unit. The going was rough, even for the specialists form the No 605 Construction Administration and other experienced personnel, all of whom ran into frequent problems.

Solutions to engineering problems were recalculated and changed on the run. "Why did they have to be changed?" you might ask. Were the first versions wrong or sloppily done? Far from it. The first data had been obtained from photographs, diagrams, and video cameras. After all, no one could get near enough to the reactor to take actual measurements or get a real idea of how something looked. So whose fault is that? The designers felt that it was theirs, and sat day and night in the bunker next to the fourth unit, battling the clock to make the necessary changes to their calculations.

The tomb was made from large blocks which were assembled some distance from the fourth unit, transported to the site, and emplaced by crane. At first glance, all this seems simple and easy enough. But the approach roads were not designed for these kinds of loads, and it seemed that they would have to be widened. Yet thanks to the drivers, who came to the rescue with their professionalism and bravery, there was no need to even start on the embankments. Like stunt men, the drivers made their way in places they never would have imagined. But delivering the blocks was only the beginning. The next question was how to emplace these units, which weigh several dozen tons apiece, as much as sixty meters high. The crane operators came through without missing a beat.

Still, the hardest part was figuring how and with what to cover the top of the ruined reactor. On the day before this was to be attempted, the experts met in the bunker and discussed every detail of the operation, including the weather. Only one thing was bothering them: prior to Chernobyl, no one had ever worked with such large construction components.

As the first shift began its work, crane operator Valeriy Ivanyakin was calm, confident that they could cope with the job ahead. Of course he was not very happy about the gusty winds, but he took his place in the cabin of the crane and the eight observers moved into their positions. Yuriy Petukhov, the project sepervisor, took his seat in front of the television screen. All personnel had walkie-talkies. At this point brigade leader Aleksandr Rodionov issued the command: "Hoist the frame." And slowly, as if resisting, the frame broke free of the ground and, after hanging motionless for a moment, began a centimeter by centimeter crawl upward.

Rodionov was amazed. The crane seemed so light for such a heavy load. He noticed a few raindrops and thought: "Wouldn't you know it." But when he reached up to wipe the rain off his forehead, he realized it was sweat. Then the frame stopped moving. Rodionov shuddered, worried about a breakdown. But looking closely, he saw that the elevation reading was 60 meters. Ivanyakin

turned the crane to the right, leaving the frame hovering over the opening. The frame had to mate with the "tomb" millimeter for millimeter, with no margin for error. "Stop," came the command from Rodionov. At this point, the frame was hanging about 10 centimeters above the supports it would be resting on. A minute passed. Then another. The arrow showed that the crane was at maximum overhang. The load was also at the maximum level, but Ivanyakin kept his nerve, patiently waiting. Then Rodionov gave the command to turn, Ivanyakin did his job, and the frame settled into place. As the sling ropes were released, the arrow in the gauge jerked sharply upward and to the right. Ivanyakin closed his eyes. It seemed to him that the crane was slowly, almost imperceptibly, shaking, as if it was exhausted. A man's legs, he thought, shake the same way when he walks uphill for a long time without resting. Then the next command came over the walkie-talkie. "Now bring up the monitoring device." Ivanyakin smiled, knowing that the "device" weighed 10 tons.

The shift ended, and the men assembled on the ground to look at what they had accomplished. The frame looked small and almost like a plaything. "It doesn't seem like much from here," said Rodionov, who quickly added, "But getting it up there was plenty tough."

The next day the pipes went in. The first one was stubborn and jangled everyone's nerves. The second was easier. The third one went in in 30 minutes, and the last one in 27 on 1 Oct.

Petrov asserted that: "It's impossible to name one or two outstanding individuals. You have to name everybody." Here are the men he means: Nikofof Strashkevskiy, Vladimir Blokhin, Yuriy Yegorshin, Ivan Artamanov, Valeriy Andrianov, Vladimir Rudakov, Pyetr Kim, Aleksandr Kachan, Yevgeniy Kuptsov, Boris Pyatunin, Yuriy Chashkin, Nilolay Mordovin, Vladimir Alekseychikov, Stepan Zuyev, Eduard Shpakovskiy, Anatoliy Fedorov, Aleksey Kovalev, Nikolay Belov, Andrey Simonov, Yuriy Antropov, Ratif Ismailov, and Andrey Kondyrev. These are the men who performed the last and most difficult part of the Chernobyl entombment. It was they who proved to be the "ace in the hole" of the No 605 Construction Administration. They have acquired a number of names at Chernobyl, including A-team, brain trust, and front four. In their ranks you will find both technicians and leaders, young workers and experienced veterans. As individuals, they are very different, but there is a common denominator uniting them; that is, the feeling that the tragedy of Chernobyl is their personal tragedy. That, after all, is why they have come here.

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## PLANT OPERATION

### FIRST UNIT GOES ON STREAM

Moscow IZVESTIYA in Russian 3 Oct 86 p 3

[Article by N. Baklanov and A. Pralnikov, Izvestiya special correspondents on the scene in Chernobyl: "First Unit On Line Again"]

[Text] The Chernobyl AES has begun producing industrial levels of power again.

Let us refresh our memories. On 26 September 1977 the first unit at the site started producing. After the accident, all the reactors at the site were shut down under emergency conditions. Then, for five months, the entire country put its shoulder to the wheel to take care of the situation. And on 1 Oct 85, at 4:45 pm, A. Mirgorodskiy, deputy director of the Chernobyl AES, made the following announcement: "The first unit is in the grid."

We had spent the entire previous day at the site. As we were opening the door to the central control room, where the main electrical network is run, I. Rakutin, a subdivision head, warned us: "Don't take this the wrong way, but make sure you stay out of the way. We have reached a difficult and critical point in our work here."

From the outside, everything at the site seemed quiet. Electric shop shift chief Nikolay Andreyevich Zakabluk explained that everything was fine; the transformer had been inspected and the shielding systems checked. The electrical components of the equipment checked out and were ready for start up.

Shadrin, who was waiting to relieve Zakabluk as shop chief, was perched near the edge of the panel, leafing through the operations log. As he himself put it, he did not yet have "official status."

"I think," he said, "that our shift will be the one to put the plant, or to be more precise, the first unit, on line." (We will jump ahead here and tell you that he was right.) "But right now I'm reading the log entries from the other duty personnel. You have to know everything that happens in the unit. So far, we've been having two-week tours of duty, so before we start, we have to study everything that has happened during the previous tour."

He continued, saying: "Actually, starting with us, we are changing to a new schedule of five days on and six off. That will make it easier to catch up on what has happened when we go on duty. And we are hoping that life in the duty personnel housing area will normalize. People are starting to move into houses at Zeleniy Mys, the base camp. Living conditions promise to be much better there. The temporary difficulties we had at "White Steamship" (which is what the plant workers called their floating home) cause many problems. For example, when a new detachment comes on board before the one that is finished can be moved out, we end up with two "occupants" per bed."

We asked: "How does what you're doing now differ from what you would normally do?"

He answered: "The difference is that we are not just going on and off duty. All systems are being checked and everything is being run in the same way it would at a site that was going on line for the first time. We write a technical readiness certificate for each stage of the pre-start process, and, on top of that, all our personnel have been recertified."

"This high level of preparation is completely appropriate," he continued. "After all, we are not just concerned with getting another power plant started. This is the Chernobyl AES that will be producing industrial levels of power. The situation demands special attention to detail and a high level of performance."

The following happened on the eve of start up. While the first unit was being readied, changes were made to the reactor loading system and the safety interlock system. One of the interlock safety units had been triggered for no reason. The safety system was thus activated and the reactor, although operating at the minimum controlled level, lost power again. Switching the reactor off is a matter of ten minutes, but coordinating the "repair" operation took two days. This will give you an idea of how carefully every step is being performed.

According to head engineer Nikolay Aleksandrovich Shteynberg: "This is the way we always work. Of course we have to perform, of course there are a lot of problems. Excuse me, I need to go to the reactor room. We're doing the last pre-start inspection."

Quite possibly, you need to be an expert in the field to comprehend how complex the AES units are. Everything may be going smoothly at one point, but the only guarantee that operations will continue to be problem-free is inspections, exhaustive information, and confidence in the reliability of all systems.

In the Chernobyl AES chief engineer's office, we met Viktor Mikhaylovich Karlov, the head of the decontamination shop.

Viktor Mikhaylovich told us: "We're not the ones producing the power or starting the generators. But no one could do a thing here without us. Right now the rooms in the first unit are as safe as those at any other plant. We checked to make sure all rooms were decontaminated. And in terms of radiation

safety, the second unit is also ready for start up. Now we're starting on the third unit."

By now, you are well aware of how of the airlock access system works: everyone wears protective clothing and takes a shower. The area in front of the first unit and the administrative complex has been completely cleaned up and decontaminated. Horizontal surfaces have been covered with fresh concrete, while vertical ones have been coated with easy-to-clean plastic material. And I feel confident that by spring we will be able to return the blue pines, which we temporarily transplanted during cleanup, to their usual place near the entrance.

The first unit is on line, producing power that for the last five months has come from other heat power plants operating at higher output levels.

The Chernobyl AES is beginning to get ready for winter. The next order of business is the start up of the second unit.

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## PLANT OPERATION

### AES UNIT ONE RESUMES OPERATIONS

Kiev PRAVDA UKRAINY in Russian 3 Oct 86 p 3

[Article by correspondent A. Sokol under the rubric "Chernobyl These Days":  
"First Unit Is on Line"]

[Text] Chernobyl (by telephone)--Yesterday, at 9:03, the second turbine to be started at the first unit was started up. The unit is now completely on line.

A rally attended by many people took place to celebrate this.

A.N. Usanov, member of the government commission, gave government commission awards to outstanding workers.

During the rally, personnel who had taken part in the construction work were the subject of an appeal to finish their clean-up of the disaster within the deadlines established by the government.

I am walking along familiar corridors. In May I walked them, too, but holding my breath and taking huge strides as I rushed along behind the plant's employees on their way to the emergency night shift. I might as well admit that I was scared. And now, things are so different it is hard to believe I am in the same building and the same rooms. The personnel seem so much more cheerful and are busy with routine matters.

According to plant deputy chief engineer V.I. Komarov, "The radiation situation in all the unit's control rooms is the same as it was before the accident. When the accident recovery effort was going on, we had filters in all the compartments that fed air into the ventilation system. But they have been removed now, since we do not need them anymore."

Unit shift chief V.K. Khokhlov informed me: "We are moving steadily upward toward our output capacity. We have reached the 50 percent mark, and by evening will add more."

As I go up to the turbine control panel, I ask senior engineer A.M. Shevchenko how the turbine started that morning is performing.

He answers: "First let me tell you about the one started yesterday. It is working like a charm. No problems with the second one either. It has been hooked into the grid and is climbing to load capacity."



Senior unit control engineer A.N. Yelchishchev described the situation quite laconically: "Everything is fine." As planned, the reactor hit the 70 percent level that evening.

AES chief engineer N.A. Shteynberg summarized the post-accident activity of the plant, saying, "We accomplished something far out of the ordinary. The plant has resumed operations. The first unit will soon be ready to go to full output, with the second to follow as repairs on it draw to a close."

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## PLANT OPERATION

### AES TESTS SECOND POWER UNIT

Moscow IZVESTIYA in Russian 10 Nov 86 p 1

[Article by IZVESTIYA special correspondent A. Illesh: "Second AES Power Unit Turned On"]

[Text] Moscow--Our newspaper has already reported that the Chernobyl AES performed a test run of the first unit. Now, our special correspondent A. Illesh reports that the second unit has also just been started, although for now it too is only a test run.

Ministry of Atomic Energy chief of the main AES administration Yuriy Nikolaevich Filimontsev stated: "Before we switched the second unit on, we rechecked all the equipment. Our technical personnel prepared for the start-up with exceptional attention to detail. Everyone at the plant underwent additional training, and all measures necessary to ensure that this next stage in the recovery process was completely safe were taken."

I asked, "Exactly when did the second unit begin its test run?"

Filimontsev answered, "On 5 November 1986, at 12:36. And now that some time has passed, I can safely say that all technical procedures have been followed scrupulously, and that the unit has been operating without fluctuations. Output at this time is 650 megawatts."

I said, "IZVESTIYA has given its readers detailed reports on the efforts of the Chernobyl AES recovery personnel. And, while the second unit was almost untouched by the accident, there has been a great deal of work involved in bringing it on line again. For example, decontamination checks have been made and lead shielding has been taken off windows. Then, just before startup, a check on the difficult fuel-changing operation was conducted; old cassettes were removed and new ones loaded. What I would like to know is, which shift was given the responsibility for the critical task of restarting the unit?"

His response was, "Well, the entire operation is planned in advance, and the startup is one of the operational steps. Let's find out exactly who was involved in the startup."

In response to my request on behalf of IZVESTIYA, Minatomenergo [Ministry of Atomic Energy] communications person Roza Dmitriyevna Baskakova quickly made contact with Chernobyl and reported, "The plant was started up during the shift of N.V. Bakeshko."

Then Filamontsev finished his short discussion, saying, "And it is continuing to operate in the test run mode. Notice that we keep using the word test. These tests are not a result of excessive caution on our part. They are designed to make sure the unit is completely safe and will be strong enough for normal long-term operations at the Chernobyl AES."

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## PLANT OPERATION

### SECOND UNIT STARTED

Kiev RABOCHAYA GAZETA in Russian 11 Nov 86 p 4

[Article by A. Tertychnyy, RABOCHAYA GAZETA special correspondent at the Chernobyl AES: "Next Step: Production Run"]

[Text] A RABOCHAYA GAZETA special correspondent reports from the Chernobyl AES, where the second unit went on line the day before Great October Revolution Day.

What is the thing a journalist at an AES finds most interesting? The answer is the nuclear reactor, the same thing the reader of this article is interested in. But on our way there, we will make a stop at unit control room number 2.

The spacious room was brightly lit. Work to ready the second unit for start up had begun as soon as the first unit went on line. The day shift during my visit was under the direction of reactor shop shift chief A.E. Korolev, who was monitoring operations in the central reactor room on a video screen.

The first time you step out onto the reactor head, you imagine you are treading on a giant heated frying pan. Nonetheless, the head is actually cold and motionless; there is no vibration, noise, or crackling sound. The reactor beneath your feet gives no hint of its great power. In fact, it was not yet operational, or even completely charged, as fuel loading had not been completed.

At this point, the area beneath the roof was filled with the sound of the traveling crane motors as they started and the loading/unloading machine column began its long descent toward its coin-sized "target." Immediately next to this column was a cabin containing a panel with manual controls. I entered this with the operator, A.K. Likhachev, the armored door was shut, and we "floated" above the reactor toward our position.

Our exact position was given to us by senior unit operator A.P. Kochergin, who was in the next room. Our job, for which we used a periscope, was to manually guide the grips on the column to a point directly above the fuel assembly, which is known as a cassette here. Likhachev "hit the target" after a few seconds and locked the column onto the cassette. And I had barely had time to

put my eyes to the periscope when the booming voice of the senior operator issuing the command: "All personnel leave the room!" resounded over the loudspeaker.

All of us left the room and went up to the control room panel, from which we could see, through a half-meter thick leaded window, the loading/unloading machine column seated atop the cassette. Everything else was hidden from us by the steel walls, and only Kochergin, using readings off the instruments on the panel, could tell what was going on; that is, that the grips were turning a threaded plug, drawing the spent cassette into the column housing, and locking it in place there. I realized that the entire first phase of the operation had been finished without my having been able to see the cassette.

Kochergin explained this, saying: "The spent cassette is highly radioactive, so we can't show it to you even in the empty room. Later you can look at a new one as we load it."

We went back into the room, where the crane was moving a rod toward the "target." The rod, which was several meters long and about the diameter of a boiled sausage, was rocking somewhat as it moved. This rod, of course, is what they mean by cassette; it is made up of several fuel elements, each of which is covered by hermetically sealed steel cladding. An operator calmly took the bottom of the uranium "sausage" in his hand (it is harmless at this stage) and guided it to the opening. In a few minutes the loading cycle was finished and, without a break, the crew started loading the next cassette.

The next morning, station director E.N. Pozdyshev received the following report from the reactor shop: "Twenty cassettes have been loaded." And at 7:40, when he arrived at the office, he wasted no time asking the two key questions over his intercom: that is, what power level was reached in the first unit and the number of cassettes loaded in the second.

After receiving these initial reports, the director surveyed the various service units and dealt with problems that had arisen during the night. Then at 9:15 the morning planning meeting began, although not, as might have been expected, with reports from junior personnel, but with a report from the director, who gave a concise summary of the previous day's work and announced the focus of work for that and the next few days.

I asked Pozdyshev if the sequence of reports was intentional, since most directors start planning meetings by asking questions in order to get a better idea of what is going on.

He answered: "The man in charge has to know 'what is going on' a lot sooner than that. I feel it is better to show up at the meeting ready to tell people exactly what they will be doing to get a certain job done. There are two benefits to this sequence. First, people ask fewer questions after my report, which saves a good amount of time. And second, each service unit knows its own job and how it fits in with accomplishing the overall job."

Pozdyshev never tires of elaborating on the sense of responsibility incumbent on each power production worker or the importance of each leader setting a good example.

Pozdyshev feels that there is no such thing as a trivial item in this job. He is convinced, for example, that an engineer who dresses sloppily may also be sloppy in the way he performs his job. This explains the comment he made to the operations chief, who showed up at the planning meeting without the required tie.

According to AES party committee deputy secretary V.I. Khalosha: "I have to admit that not everybody likes this. But the party committee has been supporting the director, since we realize we can't continue working the same way we did before the accident. Personnel units are working on developing a new style--a style which will reflect the great sense of responsibility felt by AES employees."

Disciplinary measures have not been the key factor in developing this new style, since the ultimate goal is to create an environment in which reminders and reprimands will not be necessary to prevent breaches of discipline. An example of a place where this has worked is the subways, where "No Smoking" signs are no longer necessary to keep people from smoking; they just know they are not supposed to, and don't."

Efforts to improve the plant are not limited to this. Another goal is enhancing the appearance of the facility. Management feels that if the hallways are clean no one will be inclined to leave trash in them; and that spotless workplaces will discourage personnel from forgetting tools or failing to clean up after a repair job.

My question was: "Has everybody adopted such a tidy attitude already?"

"Unfortunately not," said Khalosha, adding firmly, "but changes have taken place, and we will get there."

The personal example set by leadership personnel is critical here. Management and heads of service shops and sections have been working a minimum of 10 hours a day without days off since the accident. But of course no one can hold his breath forever. So, when they appear to be reaching their limits, these personnel get a one or two, and in rare cases three, day break to visit their families. At first such a "shot in the arm" was good for a month or more, but now it only holds a man for two or three weeks at most.

There is nothing arbitrary about this strenuous arrangement. These personnel are the only people capable of serving as the nerve center of a collective consisting of thousands of men and divided into two crews. After all, every two weeks the entire staff changes, and every worker, technician, and expert is new. Who else can ensure that their work dovetails, given the hundreds of shops and pieces of machinery?

Pozdyshev agreed that: "There really is an amazing amount to do. We'll get the second unit going, and take a vacation. Maybe not everybody will get to go

right away, but they will all get chance to regain their strength. And they'll need it. We'll have two operating reactors to keep track of, and a third one to get ready to go on line."

As Chernobyl AES engineering section chief D.D. Krivoy announced yesterday, the resumption of operations in the second unit was followed by an output of 100 million kilowatt-hours of electric power. Both units are being run in the test mode now, and personnel are preparing to switch gear to the production mode.

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## PLANT OPERATION

### SITUATION AT AES REPORTEDLY NORMALIZING

AU231951 Kiev PRAVDA UKRAINY in Russian 16 Dec 86 p 3

[RATAU report: "The New Life of the Chernobyl AES"]

[Text] Whoever revisits the machine hall of the Chernobyl AES, which experienced a grave accident, will immediately notice that the hall has changed. And not only because it has shrunk in length; directly behind turbine No 2, a partition wall has risen and has reliably shut the machine hall off power block No 3. All machine units, mechanism, and very complex equipment have been painted in bright colors. A series of repair and preventive operations have been carried out at blocks Nos 1 and 2 in order to increase their safety in further operations.

As reported, the two blocks, with a capacity of 1 million kilowatts, resumed the commercial production of electricity early in November. This was a great victory scored by the collective of many thousands of repair and exploitation workers, scientists, AES leaders and party organization. The four 500-megawatt turbines have thus far produced more than 1 million kilowatt-hours of energy. In the history of the station, a new reckoning of time has begun. Let us bear in mind that, before the accident, the Chernobyl AES gave the country more than 100 billion kilowatt-hours of energy.

... The machine hall was brightly illuminated. At various spots, green plants were shooting up. Also this was an important symptom of resumed life in the hall. A measured hum was coming from the direction of block No 1: precommissioning operations were in progress.

"Before reaching the winter-season maximum," E.N. Pozdyshev, director of the Chernobyl AES and experienced power industry worker who arrived from Smolensk and spearheaded the station's collective at its most critical time, said, "we have successfully completed a rapid [kratkovremennyy] repair. Turbine No 1 has already been put under a vacuum, and turbine No 2 is ready for the start and for connecting the generator to the grid."

In the machine hall, there were almost no people.

"One can see a man or two," the station's director said. "They are inspectors. They are visually checking the performance of the machines, listening to the



sound of the machine units in operation. And no one else is needed here, because the machines are being run and controlled by means of block panels."

After a stroll of a few minutes, we saw on the white wall of a narrow corridor a sign in red: Panel Control Block No 1. There were hundreds of colored lights, buttons, digital and letter marks. The displays were constantly projecting data which showed the process taking place at the station--from the disintegration of nuclear fuel to the generation of thermal power of the peaceful atom from steam. Headed by V.K. Khokhlov, the block's shift chief, four operators were regulating the reactor's power, were controlling the block-generator-turbine complex and the performance of the mechanisms.

The radiation situation in the blocks was quite normal, and did not differ from that there before April.

"Is there any difference in the work performed by the operators 'then and now,' particularly as far as discipline, vigilance, and the increased responsibility are concerned?"

"We have had a second look at many questions," A.G. Shadrin, shift chief at the station, said. "The personnel have undergone a special retraining course, have been recertified, have done standby operations at related enterprises, and have been through a medical screening. Demands as regards the observation of the entire technological process have increased.

"A series of educational measures have been worked out and applied. The main form is individual work on each power worker at all levels--from the main specialist to rank-and-file laborer. The AES staffs have learned the recent lesson perfectly well: the number of those building a station runs into thousands, of those putting it into operation, into hundreds, while an accident might be caused by one single man. That is why the objective of ideological work is to reach everyone."

On the completion of the particularly important stage in eliminating the effects of the accident at the Chernobyl AES, a press conference was held. It was organized by the station's management and the Ukrainian Journalists Union. Representatives of central, republic-level, and local newspapers, of the Ukrainian State Committee for Television and Radio Broadcasting, TASS, and RATAU gathered in the session hall.

In opening the conference, E.N. Pozdyshev emphasized that the party and the government constantly kept in the sight all issues connected with accelerating the work to eliminate the effects of the Chernobyl accident. The fact that the CPSU Central Committee Politburo examined the progress made in the aforesaid work and highly evaluated the large-scale measures taken in a short time was further evidence of this. The speaker tackled in detail the causes of the accident, and gave an account of the measures taken by the government commission to monitor radiation, sanitary, hygienic, medical, and biological conditions, as well as to protect and evacuate the population. The objective of the further operations, the speaker emphasized, was to prevent radioactive nuclides from spreading beyond the limits of the 30-kilometer zone.

The conditions under which the wrecked power block was buried, the speaker noted, were very difficult. The block has now been reliably covered up by a more than a meter thick shelter and metal construction.

E.N. Pozdyshev went on to emphasize that, in the next stage, the Chernobyl AES collective, along with other organizations, ministries, and departments had to restore equipment in blocks Nos 1 and 2. Both blocks have now reached their capacities and are producing energy.

The speaker highlighted the way working conditions were being created for the AES workers. It was noted that the personnel were working in field shifts. The settlement, built for this purpose at Zelenyy Mys in Kiev Oblast, has a population of more than 3,000. About 8,000 apartments have been assigned in Kiev and Chernigov for the families of staff members, and the utmost is being done to organize working and recreation conditions for people.

We power workers, E.N. Pozdyshev said at the end, will remember the enormous organizational and political work performed by the party, administrative, and economic organs of the republic, of Kiev city and oblast, a work that enabled us to cope with the homeland's highly responsible task in a very short time.

The other speakers who addressed the journalists and answered questions were: V.A. Zhmurko, representative of a working group of the government commission for eliminating the effects of the accident; V.F. Shikalov, scientific associate of the I.V. Kurchatov Atomic Energy Institute; as well as responsible functionaries of the USSR and Ukrainian Ministries of Health, and of the station's party and trade union committees. The speakers touched upon the conditions or running the protective facilities, including in block No 4, upon the radiation situation in the 30 kilometer zone, upon the return of the evacuees, upon restoration work on Chernobyl'skiy Rayon farmlands, upon trends toward changing the radiation situation in the zone adjacent to the AES, and upon the medical aspects of the effects of the accident.

It was noted at the press conference that rumors concerning Chernobyl were still in circulation. As a rule, they are being generated by people who do not know either the problem or the concrete situation. Now and again, they are being intentionally spread by the mass media in a number of Western countries. However, the voice of reason and objectiveness is also audible abroad. Thus an international conference on nuclear risks held recently in London found that all operations performed by the emergency services in Chernobyl were exemplary, although it was very difficult to accomplish their tasks. The conference concluded that the accident which occurred at our AES did not remove the item of further developing nuclear energy production from the agenda, because this was a natural process in life.

The main conclusion, however, has been drawn by life itself: To adopt and to take, under emergency conditions, all the measures necessary and to restrict and to eliminate the effects of an accident as a global as the Chernobyl one in a mere half a year was only possible under the conditions of the Soviet special system.

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## PLANT OPERATION

### BRIEFS

NEW GOMEL ELECTRICITY GENERATION--(BELTA)--In terms of power the TETs-2 that has been built in Gomel is as big as a power station. Its first power unit, rated at 180 megawatts, has been switched into the country's electric grid system. Its power is going to industrial enterprises in the oblast and to the apartments of people in Gomel, and republic resources have been augmented. Moreover, with the commissioning of the new heat facility, whose construction is now being completed, each hour the city will be provided with 280 gigacalories of heat, which will fully satisfy demand. The design of the switchable power unit makes it possible to reduce the supply of electricity at night and increase it during "peak" hours without reducing the flow of heat. Under conditions in which because of the accident at the Chernobyl AES the industrial centers in the oblast have been experiencing shortages of electric power, bringing the first unit on line ahead of schedule has been most opportune. Together with the two units brought on line at the nuclear power station in Chernobyl, commissioning of the capacities at the Gomel TETs-2 virtually solves the problem of steady supplies of energy for the industrial center in Belorussia's Polesye. In 1988 it is planned to construct and commission yet another power unit of the same power. [Text] [Minsk SOVETSKAYA BELORUSSIYA in Russian 6 Jan 87 p 1] 9642

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